

THE MARINE CORPS GAZETTE



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WORKING OUT A GUANTANAMO PROBLEM.

The MARINE CORPS GAZETTE

Captain Frank E. Evans, U. S. Marine Corps, Retired, Editor.

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A PLEA FOR A MISSION AND DOCTRINE.

Major John H. Russell, U. S. M. C.

AS INFORMATION from war torn Europe gradually drifts across the Atlantic, we learn of the use of new implements of war and the consequent changes to modern tactics. In all of this intelligence the one point that stands out clearly is the high degree of "Efficiency" of the opposing armies of Germany and France. These forces serve as a "Standard of Efficiency" to which military organizations can and should be trained.

It is therefore but natural that we, of the Marine Corps, should turn to our own organization and compare its "Efficiency", as we know or believe it to be, with the standard set for us. Such a comparison shows that, while in recent years great strides have been made in improving the efficiency of the Corps, there are some factors that go to make efficiency that have been overlooked or a sufficient amount of stress not laid on them. It is for the purpose of succinctly pointing out these deficiencies and suggesting remedies that this article has been undertaken.

EFFICIENCY.

Efficiency is often defined as "the quality of producing results". It is of high or low standard according to the results produced. To reach its maximum all the factors that enter into it must be developed to their maximum and thoroughly harmonized. Then, and only then, can an organization, either Public or Private, be said to be efficient.

While the necessity for a high degree of efficiency in a Private Organization is great and is usually stimulated by competition and money greed; in a Public Organization, especially in a military or

naval organization, the necessity for the maximum efficiency becomes peremptory, while the suscitating influences which assist the private concern are lost.

To be truly efficient a military or naval organization must be prepared to place at the command of its Government and in the shortest possible time, all its Power.

The governing factors of such "efficiency" may be stated as follows:

- (a) Organization
- (b) Materiel
- (c) Personnel
- (d) Policy
- (e) Leadership
- (f) Discipline
- (g) Morale
- (h) Doctrine.

The value of some of these factors is not as great as the value of others, but each and every factor is important. Lacking anyone the maximum degree of efficiency can never be attained.

It is, accordingly, of the utmost consequence that every military organization carefully develop each factor and include the co-ordination of all. Such an organization then would become a multiple of the factors or an *organic mass*. A healthy, sound organization that is capable, in the shortest possible time, of placing all its *power* behind its blow.

ORGANIZATION.

To accomplish the exchange of commodities private business organizations are necessary. The transfer of goods from Producer to Consumer is thus effected. Formerly, it was the custom for business to create the demand for goods but a scientific investigation of the subject induced, in part, by numerous failures, soon established the general principle that the demand or necessity creates business. This is the only logical assumption and, at the present time, no great business is undertaken without a careful and exhaustive study that clearly demonstrates the necessity for its establishment. Such an investigation conducted along modern lines, insures as well as can be insured, a lucrative profit which is the final object of all private enterprises. In other words it may be said that "Business, like Government, is an evolution and grows out of general economic conditions."

The necessity for a certain undertaking having once been shown the next step is to outline, in general terms, the "Task" to be accomplished. For example, wheat raised in the middle west may ultimately be destined for England or some other non-wheat producing area but the definite task of the farmer is to raise the largest possible amount of wheat in the most economical manner. His work is then accomplished. The transporting to the mill, the milling, the storing in elevators and the final shipment form separate and complete tasks with which the farmer is only indirectly concerned. The above principle of the Division of Labor applies, equally well, to nearly every form of human activity.

Public or Governmental Business, like Private Business, is created by demand. It is a fact that the final object is not the same, for while in private business it is financial gain, in public business it is social betterment. The underlying principles, however, are the same and the analogy may be carried to many points of similarity in both organization and methods.

As already stated the determination of the "Task" or "Mission" is the second step. What is to be accomplished must be clearly and definitely understood by everyone charged with the direction of a business, either public or private. In many cases, especially in public undertakings, the "Mission" can only be stated in very general terms and in the accomplishment of it many "Special" or "Sub-Missions" may be found necessary, but the "General Mission" will always be found to stand out clearly above them all. It represents the purpose for which the organization was created and exists and never, for a moment, must it be permitted to become smothered by the introduction of "Minor Missions". The trail once lost is hard to regain.

Organization may be defined as the act of bringing together related or interdependent parts into one *organic* whole so that each part is, at once, end and means. In other words the co-operation between the various units must be *perfect*.

It is generally asserted that the success of certain private undertakings, over others, is due to their more efficient organization. The fact that German business firms have been successful competitors with those of other nations, in all parts of the world, has been stated to be due to their more perfect organization.

The analogy between a Great Business and a Military Organization is especially close. Each has its Mission, each is divided into

various branches or units which must be separately officered and united into a perfectly disciplined, controlled and efficient organization. In each case the organization must be such as will best suit the fulfillment of the "General Mission". This is the prime factor of organization for which all others must be laid aside. Furthermore, it is a fact that a military organization must be perfected in time of "Peace" for after "War" has been decided on it will be too late.

The writer believes that the "General Mission" of the Marine Corps is: To co-operate with the Navy, in Peace and War, to the end that in the event of a war the Marine Corps could be of greatest value to the Navy.

But is this the "General Mission"? How many officers of the Marine Corps, if interrogated separately, would give the same answer? What then is our "Great Work"? No matter how well an organization is organized, if it does not know its "Mission" how can it reach the highest degree of efficiency? It must necessarily lack a concerted action to accomplish its Work.

In performing its "Task" the Marine Corps will, naturally, have many "Special Missions" presented to it, in fact in years of Peace, they are apt to become so numerous that the impression is likely to prevail that such subsidiary work is not at all subsidiary but is, in reality, the Master Work of the Marine Corps. Such an impression is worse than misleading, it is dangerously false, and if allowed to permeate the service would result in its failure to properly prepare itself for the real issue and cause it to fight at an enormous and perhaps decisive disadvantage.

It is believed that the "General Mission" of the Marine Corps should be drawn up by a Board of Marine Officers appointed for that purpose. The result of this Board's work to be submitted to a Conference of the Field Officers of the Corps, or as many as might be available, for discussion, amendment, if necessary, and ratification. The Conference to be presided over by the Major General Commandant of the Marine Corps. Every officer on entering the Corps would be at once instructed in the Mission of the Marine Corps and Commanding Officers would preach it to all their subordinates.

PERSONNEL.

The importance of this factor is paramount. With poor personnel, no matter how well organized and equipped, an organization

will, in short order, deteriorate. In fact, in general terms, the efficiency of an organization may be gauged by its personnel.

MATERIEL.

This factor depends, to a large extent, on the Organization and Personnel. If the organization is excellent and the personnel alert to its necessities the materiel should, in a well governed nation, be brought to a standard equal to or better than a similar organization belonging to any other Power.

If, on the other hand, the organization is defective and the personnel of poor quality the materiel is certain to be correspondingly in poor condition and obsolete.

POLICY.

After the organization of a Public or Private Undertaking has been perfected management begins.

The "Policy" of an organization may be defined as the system of management necessary to accomplish the "Mission". It is the conduct of the affairs of the organization. For governmental organizations, to a great extent, Policy is governed by regulations but nevertheless a great deal is left and must necessarily be left to Commanding Officers permitting them to initiate a Policy of their own covering their particular commands.

LEADERSHIP.

The qualities that go to make a Leader of a military organization are: Will Power, Intelligence, Resourcefulness, Health, and last, but not least, professional knowledge and training.

It is a mistaken idea that Leaders are born and not made. It is true that a certain amount of personal magnetism may be of assistance in the making of a leader but if an officer cultivates and develops the factors enumerated above he will necessarily develop into a leader. Of prime importance is a study of psychology and its relation to discipline and morale.

Leadership may be either actual or directive. Actual in the lower grades of the commissioned personnel of a military organization and directive in the higher commands. It is, however, just as important in the one case as the other and the same factors are applicable in each.

While the preparation for "Leadership" must be left to the indi-

vidual the Marine Corps could materially assist its officers by pointing out the road and by establishing and maintaining schools where officers could receive the best theoretical and practical training.

DISCIPLINE.

Years ago Kempenfelt wrote: "The men who are the best disciplined, of whatever country they are, will always fight the best."

In some countries the form of government naturally tends to promote discipline among all classes and the recruit, when called to the "colors", enters the service already more or less inculcated with the habit of subordination. In other countries, however, where the method of living is more free, the recruit is not as susceptible to discipline and it is for this very reason that discipline in the military and naval organizations of such a nation assumes great importance.

It may be said that the laxer the rule, order, method of action, or living in a country the stricter should be the discipline in the military and naval organizations of such a country.

A study of the best method to be employed in obtaining excellent military discipline implies a study of the Psychology of Suggestion and its application to military life.

The recruit who has matured under certain free conditions of city or country life is suddenly placed in an entirely new atmosphere and it is to overcome the perhaps bad impressions of such a sudden change of environment and to direct the mental attitude of the recruit along proper lines that psychology must be employed.

The study of this important subject by all commissioned officers of the Marine Corps should be made imperative, a proper course of study being outlined in General Orders.

MORALE.

The necessity for maintaining the "Morale" of an organization at a high pitch, during both peace and war, is well recognized. This subject has been dealt with most thoroughly, in recent years, by students of psychology and in the present European war great attention is being devoted, on all sides, to this important factor.

It would therefore seem proper that special attention should be given by the Marine Corps to this subject, such, for example, as the appointing of a Board of Officers to study the subject and draw up a concise Manual outlining a method, applicable to the Marine Corps, for increasing the Morale of this organization and maintain-

ing it at its maximum during peace and war. Such a method if properly enforced would result in the study of this important subject by all officers and tend to greatly strengthen the organization as a whole.

DOCTRINE.

During the past few years a number of articles, that have become Classics, have been published on the subject of Doctrine and its relation to war. The writer, therefore, feels a decided hesitancy in even touching on this subject, but he believes its importance to the Marine Corps to be so vital that he cannot refrain from a general discussion of it in the hope that the seed once sown will quickly germinate and develop into the strong branch of action, and that the day is at hand when the Marine Corps will be indoctrinated.

It is well understood by military men of the present time that the Art of War has its theories and its principles, otherwise it would not be an art. It follows that it also has the application of its principles or *Doctrine*.

The common acceptance of the word doctrine makes it synonymous with principle. This is not true. A principle is a fundamental truth. A military principle is a fundamental truth arrived at by a study of the military history of wars and adapted to the circumstances and characteristics not only of the military organization but of the nation it represents. Napoleon has aptly said: "The principles of war are those which have directed the great leaders and of which history has transmitted to us the main facts."

The word "Doctrine", as applied to military life, means a teaching that provides for a "mutual understanding" among the commissioned personnel of a military organization. In plain words "team work".

Military doctrine is born of military principle. It is the application of principle. A principle cannot be wrong, it is a *fact*. A doctrine, on the other hand, may be wrong. As it becomes ripened by experience or to suit new conditions, it is altered. It is thus, at first, tentative and gradually built up by a process of evolution.

The historical study from which we derive certain principles is nothing more or less than an estimate of the Situation. The principles deduced represent our decision. Having once made a decision it becomes necessary to put it into execution, in other words to apply the principles. This is true military Doctrine.

In the preparation of a doctrine the "General Mission" of the organization must never be lost sight of. Let the doctrine be clear, concise and founded on the accomplishment of the General Mission in the shortest possible time. With doctrines covering "Sub-Missions" confusion is certain to arise and we would have some officers indoctrinated for one situation and some for another—a grave error.

Such a work as the formulation of a doctrine, however, is not the task for one man but is rather a labor for a General Staff, or lacking a General Staff for a Conference, a reflective body.

All the Great Powers of the world, except the United States have instilled into their armies and navies doctrines of war which have inspired them with new life.

Without a doctrine all the Drill Regulations, all the Field Service Regulations, all the text books are as one writer puts it: "But dead bones and dry rust."

General Langlois, one of France's most astute generals and foremost military writers, has well said:—

"Sans doctrine, les textes ne sont rien: a des textes sans doctrine, serait beaucoup preferable une doctrine sans textes, ce qui etait le cas a l'epoque napoleonienne."

General Kuropatkin, in his book on the Russian Campaign in Manchuria, tells us: "Although the same drill books and manuals are used by the whole army, there is considerable variety in the way the tactical instruction is imparted, owing to the diverse views held by the District Commanders."

The first phase of the British Campaign in South Africa resulted, as a clever British writer puts it, in "the unforeseen spectacle of a highly trained and well disciplined regular army, whose armament and equipment were abreast of the requirements of modern war, checked at all points by the levies of two insignificant Republics whose forces were but loose gatherings of armed farmers."

During the period of Frederick the Great military forces were maintained in mass formations and manœuvred in combat by commands.

During the Napoleonic age conditions changed, the rigidity of the mass formation was replaced by open and flexible formations resulting in a consequent separation of units. This gain in flexibility and ability to manœuvre was obtained only by a corresponding loss of control or command. No longer could one man directly control the entire force. For example, Napoleon had to depend on

the ability of his subordinates to interpret the meaning of his orders and instructions. But few of these had been trained in the same school of thought. There existed no common bond to assure a unity of mind and action. A link in the Chain of Command was missing, there was nothing to unite command and execution.

When that great German student of the Art of War, Moltke, became Chief of Staff, he at once started to forge the missing link in the chain of command of the Prussian Army.

The successes of the Prussian campaign in Austria were soon followed by the victories of the Franco-Prussian War and clearly demonstrated the wisdom of Moltke's policy. The doctrineless armies of France lost the war but thanks to their many able military students and writers the lessons learned were clearly set forth and at the present moment the indoctrinated armies of France are holding at bay the indoctrinated German troops.

Flexibility of command spells "Initiative". Initiative may be either Reliable or Unreliable. The introduction of doctrine means *Reliable Initiative*.

Moltke, the great exponent of doctrine, required of detachment commanders "a high degree of technical skill with minds trained to work in unison with that of the higher command, even when separated from Headquarters by a distance which made control impossible."

It was the inculcating of doctrine into the Prussian Army which permitted the introduction of the "cult" of the Offensive which now permeates the German Army.

Even with the modern systems of communication which bind together the various units of an organization the need is as great, if not greater, for a unity of thought and action permitting of a reliable initiative.

The usual illustration for the necessity of a doctrine is that of a number of separate columns advancing on a broad front. Each column commander knows that on making contact with the enemy he can boldly take the offensive with the full assurance of the absolute support of the columns to his right and left and the knowledge that their interpretation of the various situations that may arise will be the same as his own.

Consider the well worn simile of the foot-ball team. Let us take two teams, "A" and "B". The first has been indoctrinated; the second has not. When a certain signal is given by the Captain of

"A" team all the members of that team know that the ball is to be kicked, they know that the fullback will fall back, each member of the team on the line knows that he must hold his man at all cost (the strong defensive), the ends know that they must take a strong offensive, break through the opposing line and get down the field as the ball is snapped back.

On the other hand "B" team has no doctrine. There exists no mutual understanding as to what is expected of each and every member of the team. The end knows that he should get down the field but the man next to him does not know it and permits an opponent to block him. The line does not realize the necessity for putting up a strong defensive and consequently "A" team succeeds in breaking through and blocking the kick. On which team would you bet to win?

In this case the units are in touch with each other. How much more difficult is the situation in the case of a military organization where the units, or some of them, are separated.

Let us examine, for a moment, our Field Service Regulations (1914); the sacred book of every officer.

Under Articles I, II, III, IV, V and VI, we find at the beginning of each article certain "General Principles" to which in most cases many pages are devoted. As a matter of fact a casual reading of these pages will show that principles, doctrine, instructions, regulations and customs are all jumbled together in one almost intangible mass which many officers no doubt take at their heading value—General Principles.

Military principles and doctrine should form a *Creed* for every officer but when we obscure them by mixing them in with numerous regulations, instructions, customs of the service and other data, they at once lose all force, if they do not become unrecognizable.

Why not cull out the principles and doctrine. Add to them what is deemed necessary, place all in clear and concise language and make it form the military creed of our officers.

For example, in Article IV, under the heading General Principles, we find the following: "The march is habitually at route order." This is certainly not a military principle, it is essentially a doctrine. There is a military principle of the Conservation of Energy. From this principle flows the doctrine: In campaigns the march is habitually at route order.

Other sentences in the above-mentioned article and under the same

heading are: "When possible, ample notice is given so that preparations can be made without haste. Troops are informed of the length of halts so that they can take full advantage of the same. The men are kept under arms no longer than necessary, nor required to carry burdens when transportation is available. As a rule troops on the march pay no compliments; individual salutes, etc." All of this and much more in this paragraph consists of neither principles nor doctrine. It is purely administrative.

Again, the first sentence of Article IV reads: "A successful march, whether in peace or war, is one that places the troops at their destination at the proper moment and in the best possible condition." The first part of this doctrine, for doctrine it is, flows from the principle of the Economy of Forces and the second part from the principle of the Conservation of Energy.

Under Article VI, F. S. R., we find under the heading General Principles no principles but definitions, administration, instructions, etc. The military principle covering all of these, but which is not stated in the text, is the principle of the Conservation of Energy.

Turning to Article I we likewise find no principles.

The second paragraph of Article V under "Combat", placed in the text in the nature of a comment, reads as follows: "Decisive results are obtained only by the offensive. Aggressiveness wins battles. The purely passive defense is adopted only when the mission can be fully accomplished by this method of warfare. In all other cases, if a force be obliged by uncontrollable circumstances to adopt the defensive, it must be considered as a temporary expedient and a change to the offensive with all or part of the forces will be made as soon as conditions warrant such change." The underscoring is not in the text.

If we cut out of this paragraph all except the underscored words we have a military principle, not stated as such in the text, from which naturally would flow the Doctrine of the offensive except when the defensive is adopted as a temporary expedient. As a corollary we would have, the Defensive is a method of creating opportunity for Offensive Action. In the same article under the heading "Combat Principles", we find few if any military principles, much doctrine and instructions. For example, "Avoid putting troops into action in dribblets" is not a principle, it is pure doctrine. Again, "Flank protection is the duty of the commanders of all flank units down to the lowest, whether specifically enjoined in orders or

not." This is pure doctrine and cannot in any way be construed as a military principle.

In Article II the Service of Security is covered by the military principle that a command protects itself from observation, annoyance or surprise by an enemy. From this principle springs the doctrine that the "primary duty of an Advance Guard is to insure the safe and uninterrupted advance of the main body." The greater part of the information contained in the paragraphs in this article under the heading General Principles are definitions or instructions.

Turning now to Article III. This article deals with the subject of orders and contained in the paragraphs under the heading General Principles we find definitions, information, instructions, but little doctrine and few military principles.

An examination of our Drill Regulations (1915) shows a similar condition to prevail. We find, for example, "Combat Principles" for the battalion, regiment and brigade (pages 209-218). A careful reading fails to disclose a single principle under these headings.

A military organization to be efficient and powerful must be so indoctrinated as to acquire a uniformity of mind and action on fundamental military truths. Would not a commander in the field be re-assured if he knew that an unsuccessful attack by the enemy would be a signal for a strong counter-attack by all parts of the line attacked or that the offensive, once begun, would be carried on by all parts of the line with great vigor until order to cease? All the German military teaching is based on the "cult" of the Offensive. Their teachings say: "It is not even necessary to delay looking for too many advices about the enemy; the time for research is being wasted from the operations; it allows the adversary to do as he pleases and to impose his plan on us when we should impose our plan on him." This is part of the doctrine with which every German officer is indoctrinated. The offensive, in spite of everything, has permeated their very blood and marrow. But to permit of the placing in the hands of subordinates so powerful a weapon as "initiative" the subordinates must one and all be carefully trained to a uniformity of thought and action. It has been well said: "Initiative is a double edged weapon, dangerous to trust in the hands of subordinates who are liable to misconceive the mind of the Chief and are unable to read a situation as he would read it."

We demand "initiative" of subordinates and yet fail to train them for an intelligent initiative. What then can we expect?

In our Field Orders the first paragraph is the information paragraph. The second contains the General Plan and the third the details of the plan, etc. A subordinate officer of an indoctrinated force serving with a detached command receiving the order reads the information paragraph and "understands the train of thought to which the information paragraph has given rise. The information being so and so, naturally, the Commander wishes to do this, therefore, I must do that. Obedience at once becomes intelligent because the purpose of the superior is understood and unconsciously approved."

Colonel (now General) Foch in his Conference Lectures, at L'Ecole Supérieure de Guerre, puts it as follows: "An activity of the mind to comprehend the views of the Superior Commander and to enter into his views. An activity of the mind to find the material means of realizing them. An activity of the mind for realizing, in spite of the methods of the adversary, the conserving of freedom of action."

If an organization is doctrineless a subordinate cannot arrive at an intelligent understanding of orders as now written, in the Moltke style. For a doctrineless force detailed orders are necessary with a consequent absence of initiative and poor results. Since we have gone half way and adopted the modern system of writing orders why should we not adopt the modern method of inculcating a doctrine? The one is dependent on the other.

Our Drill Regulations tell us that "In extended order the *Company* is the largest unit to execute movements by prescribed commands or means" and further "In every disposition of the battalion for combat the orders of the bt. c. should give subordinates sufficient information of the enemy, of the position of supporting and neighboring troops, and of the object sought to enable them to conform intelligently to the General Plan."

How can they conform intelligently if they have no military doctrine, no interpretation of the military principles to act as a guide for them? It is as impossible as the command of the Famous King that all clocks and watches in his kingdom should keep the same time. He established no method of regulating them and yet he ordered that they must all synchronize.

The mind of the subordinate must be "tuned" by the introduction of Doctrine to work in harmony with the mind of the Commander.

The Marine Corps has no Doctrine and the lack of this important factor must necessarily greatly reduce the "Efficiency" of the Corps.

It is possible, some say probable, that the Marine Corps may be called on in the near future to face trained, seasoned, highly disciplined and indoctrinated troops. Lacking a doctrine, no matter how good our organization, equipment, personnel, discipline and morale, we would unquestionably be badly handicapped, perhaps fatally. We have no creed to bind us together, to help us to understand one another, to guide us to assist one another, to concentrate all our effort; we are as helpless as a ship without a rudder.

The formulation of a Doctrine rests with the Marine Corps. It does not require Congressional action or outside advice. It would require but slight expense and little effort.

For the purpose of formulating a Doctrine it is suggested that a similar course be employed as to that suggested for determining on the General Mission. Field Officers of the Marine Corps, or as many as are available, should be assembled, under the direction of the Major General Commandant of the Corps, for a Conference. The result of the work of such an experienced Reflective Body would be a *Tentative Doctrine* or *Creed* for the Marine Corps, to be preached by every Commanding Officer and taught to young officers on entry. It would thus soon permeate the very blood and marrow of the commissioned personnel.

Such a Doctrine, or at least the results of the first Conference, would only be tentative and might require changes in it as we became more experienced but it would certainly be a start in the right direction and establish a bond of sympathy among the officers of the Corps.

Why should we not, in terse language, lay down certain military principles that we believe are applicable to the Marine Corps? Why should we not formulate a concise and clear Doctrine to bind us together? Why should we not formulate our traditions and incorporate them in our doctrine? Why should we not have a "cult" of the Offensive?

Such action would greatly increase the usefulness, efficiency and prestige of the Marine Corps and tend to unite this organization into one *organic* whole.

Let us remember the words of General Langlois: "Without doctrine, text books amount to nothing; a doctrine without text books would be much better than text books without doctrine, as was the case in the Napoleonic age."

EDITOR'S NOTE:—A discussion of Major Russell's article will be found in closing pages of this number.

AIDS TO SPOTTING SHOTS ASHORE AND AFLOAT.

Captain Samuel W. Bogan, U. S. M. C.

THE effectiveness of gun fire depends primarily upon the ability of the officer spotting to locate accurately the fall of the shots and from his observations give, if necessary, such corrections for firing as will produce destruction of the enemy or hits upon a target.

To determine the range of a given target range finding instruments are used so that within a few seconds after the appearance of the target the distance from the guns to the target may be fairly well established. The spotter's duty then is to determine accurately from the fall of first shot or shots, the correctness of the range, as given by the range finder and to estimate the corrections to be applied if any change should be required. Of course, other factors enter into the calculations, such as moving targets and stationary guns, moving guns and stationary guns, and both guns and targets moving.

This article applies to range finding only so far as is necessary to include the range in the formula for determining the lateral deviation of shots. The naval spotting glass of 10-power has a field of 4 degrees; a similar glass of 1-power will have a field of 40 degrees, so that to find the field in degrees of any glass of this type divide 40 degrees by the power of the glass.

Suppose a target is at 4,000 yards: the field of the 10-power glass then is equal to

$$\frac{(2 \times 3.1416) \times 4,000 \text{ yards} \times 4^\circ}{360^\circ} \text{ equals } 279.25 \text{ yards.}$$

The spotter now knowing the field of his glass, can quickly judge the deflection in yards from the end or the center of the target.

In order to simplify the process of finding the field of the spotting glass of a given power at any range a number can be found, such that, when this number is multiplied by one per cent of the range, the result is the field of the glass in yards.

As an example, the number 7 is a constant multiplier for the 10-power naval spotting glass at all ranges.

Range, 4,000 yards.

1 per cent of range equals 40 yards.

40x7 equals 280 yards, or field.

The actual field is, as given, 279.25 yards. The resultant difference is .75 yards.

A range of 5,000 yards gives 50x7 or 350 yards.

Actual field, 349 yards; a difference of 1 yard.

As can be seen the process of finding the field is simple and takes but a few seconds to establish. The difference from using this constant multiplier is very small and of slight consequence considering the fact that the range finding instrument may not be absolutely correct. Of course the correction given for lateral distance of shots from the target depends upon the training and ability of the spotter to estimate this distance correctly, knowing the extent of his field.

As a further aid in measuring this distance small wires or hairs could be installed in the glass so as to divide the field into halves, quarters, etc. The fields for other types of spotting glasses can probably be worked out and constant multipliers found if desired.

The following table shows the multiplying factor for the different powers:

| <i>Power of Glass.</i> | <i>Degree of Field.</i> | <i>Constant Multiplier.</i> |
|------------------------|-------------------------|-----------------------------|
| 5 | 8 degrees | 14. |
| 10 | 4 " | 7. |
| 15 | 2 2-3 " | 4.6 |
| 15 | 2 1-2 " | 4.3 |
| 20 | 2 " | 3.5 |

The formula for finding the field is one per cent of the range, in yards, multiplied by the constant multiplier; for the power of glass equals the field of the glasses in yards.

One per cent in yards x constant multiplier equals field of glass in yards.

It is hoped that these suggestions may prove to be of assistance in perfecting the systems of spotting now in use by our naval and military forces.

THE FIRST EXPEDITION TO PANAMA.

Captain Frank E. Evans, U. S. M. C., Retired.

THERE are few officers on the active and retired lists of the Marine Corps who have not, in their career, been attached to at least one of the long series of expeditions charged with the duties of restoring order, putting down revolutions, and keeping open the Panama Railroad for transit across the Isthmus in fulfillment of our treaty obligations. Not until the United States came into full control of the Isthmian Canal Zone did these conditions of revolutionary uprisings against the Columbian government cease. The first expedition despatched from the United States to Panama to cope with such conditions landed there in 1885. It is possible, through examinations of the newspaper files of those days, to give color and new interest to the official account of that expedition. While the records of Headquarters contain the salient facts, they are silent on many interesting phases of the revolution. Through the newspaper accounts mailed from the Isthmus, and from interviews secured from officers returning from there, runs a colorful tale of the piracy that flourished there for centuries. It covers the burning of Colon by the revolutionists, the capture of Panama City first by one army and then by the other, the activities of a Haytian soldier of fortune and the execution of his two aides, one a Haytian General and the other a West Indian negro, the notorious Cocobolo. This double execution changed the fashions in capital punishment in the Central American countries, for the time-honored activities of the firing squad were thrown into the discard through the restraining influences of the expeditionary force, and hanging was introduced to the Isthmus customs. Before this stormy chapter was closed, to be followed by others of lessening intensity, the enterprising revolutionists revived the old traditions of the Spanish Main by resorting to piracy on the high seas until an American man-of-war ran down the brigantine that had started out under the Jolly Roger to prey on Columbian commerce and that of other nations.

A TROPICAL GAME OF TAG.

The insurrection of 1885 followed upon the leaven of discontent germinated by the result of the presidential election held in Panama

in the summer of the preceding year. The malcontents incited a revolution in the State of Cauca, Columbia, in February, and the government troops quartered in Panama were despatched there to aid in quelling it. The revolution was led by General Aizpuru, a former President and a leader of the Liberal faction. The Colon troops, commanded by General Gonima, were sent across the Isthmus to garrison Panama. Colon, stripped of troops, was seized by Prestan, a Haytian negro, who, with Aizpuru, was known as a leader of the anti-American faction. Gonima moved his forces against Prestan and the two met at Monkey Hill, two miles outside of Colon, with their respective commands numbering about 150 each. Prestan was driven back to Colon and there routed, but he fired the city before leaving.

Meanwhile, Aizpuru, taking advantage of the uncovering of Panama City, moved his army into it and declared himself President. All of the Isthmus, excepting Colon, was in his control.

Following the receipt of cable advices of this busy day, the date of which, April the first, lends a comic opera touch to the little war, Colonel Commandant Charles G. McCawley was ordered by the Navy Department to assemble a battalion for duty on the Isthmus. Within twenty-four hours of the receipt of the order Brevet Lieutenant Colonel Charles Heywood sailed from New York on the *City of Para* with a battalion of marines. The battalion landed at Colon on April 11, and the following day was in the City of Panama. On April 7 a second battalion under Captain J. H. Higbie, with 150 sailors, the total force under Commander B. H. McCalla, U. S. N., sailed for the Isthmus. The ranking officer in those waters was Rear Admiral Jas. E. Jouett, U. S. N.

Garrisons were established by Colonel Heywood at Matachin, Colon, San Pablo and Panama, names as familiar to the Corps now as those of the posts in the United States, and a battalion was also landed from the North Atlantic and Pacific Squadrons. Hardly had these strategic points been garrisoned before barricades were being erected in the streets of Panama by the energetic Aizpuru to contest the advance of 700 national troops who had landed at Buenaventuro to wrest Panama from the usurper. Colonel Heywood, who maintained his headquarters on the outskirts of Panama, promptly occupied the city and disposed his forces for hostilities. The barricades were either occupied or destroyed, Cathedral Square and other strategic points prepared for active fighting, and Aizpuru

arrested and confined in the Grand Central Hotel, all within a period of thirty minutes.

Aizpuru simplified matters by agreeing to level his barricades and to guarantee that there would be no street fighting, and the marines were withdrawn the next day to the outskirts where the railroad approach could be controlled. Four days later the national troops entered the bay by a flotilla of nondescript craft. On April 30th, as the result of a conference, Aizpuru surrendered and the Columbian flag was hoisted at Camp Jouett and saluted. One week later Higbie's battalion and the naval artillery contingent sailed from Colon on the Pacific Mail liner *Colon*, and two weeks later the remainder of the expedition followed on the *Acapulco*. The total strength of the marines who participated in this expedition was 34 officers and 651 men.

While marines had been previously landed from men-of-war for service on the Isthmus, this was the first expedition mobilized and embarked in the United States for such service. It was therefore the first of the long line of expeditions that carried the flag of the Corps to that stormy strip of Central America. Commander David D. Porter landed his squadron marines in 1860 to put down an insurrection in the City of Panama, and his seizure of the railroad terminal broke the back of the disorder. In 1873 Rear Admiral Steadman landed marines and bluejackets with field pieces, and, when the outbreak was renewed a few weeks later Rear Admiral Almy took similar action, the landing parties of the U. S. S. *St. Mary's* and the British Ship *Clio* cooperating.

THE INSIDE STORY OF THE EXPEDITION.

The inside story of the expedition of 1885 can be best told in the despatches from the Isthmus by the special correspondent of the *New York Times*, and in the interview of Commander McCalla and an officer of the Corps on the date of the landing of Heywood's battalion from its service on the Isthmus. Under date of May 26, 1885, the following despatch appeared in the *Times*:

"The Haytian General Pautrizelle and George Davis, alias Cocobolo, a West Indian negro of Prestan's band, which burned Colon, were executed on the 5th instant. Both were criminals of the worst character, Pautrizelle being the author of the burning of Jacmel. They were condemned to death by a court-martial. The proofs of guilt were undeniable. They were arrested by Lieutenant Robert

M. Doyle, U. S. Navy, on April 1, after having lingered around the scene of their villainous exploits for over twenty-four hours after Prestan and their accomplices had fled. Pautrizelle, after his sentence, addressed the following note to Pedro Prestan, reported to be in charge of a battalion of the revolutionary forces occupying the castle of La Papa, a strong position commanding Cartagena:

"To Senor Pedro Prestan, in life:

Friend Prestan—

"I die on account of facts accomplished in burning Colon. Although I am in the tomb, do me the favor to clear me in the minds of the people of Colon that I am the author of the crime. I had already surrendered to the troops at 1 o'clock, when at 2 o'clock you placed fire in the city. The Columbians I do not blame. The Americans who captured me in the streets of Colon are my assassins and not the Columbians. I die as a soldier, but you know well why. It is because of you—because I had no right to political color in Columbia. My family remains on the earth. I have sacrificed their means and resources for you. Farewell!

"Gen. Pautrizelle.

COCOBOLO'S LACONIC FAREWELL.

"A half hour after sentence was pronounced the two prisoners, securely handcuffed, marched between double files of soldiers to the old *calabozo*, where a gallows had been erected. With the noose about his neck Pautrizelle made a short speech, renewing his charge that Prestan had fired Colon. Cocobolo said nothing but 'adios!' Seventy minutes later both were dead from strangulation. The bodies were removed to Monkey Hill where they were buried uncoffined, unwept and unsung.

"The presence of the United States Ships *Tennessee*, *Galena*, *Swatara* and *Alliance* at Colon, and of the *Shenandoah*, *Iroquois*, and *Wachuset* on the Pacific side, with an aggregate landing force of 1,000 well-equipped marines and sailors, removes all necessity for the longer detention of the extra force from the United States, and they are holding themselves in readiness to reembark. Columbian troops have relieved the detachments of marines stationed at Matachin and San Pablo.

"It should always be a proud boast for the Marine Corps that they so conducted themselves here as to gain the respect and goodwill of the contending factions and of the people of all nations represented on the Isthmus."

Under the heading "Not A Junketing Tour," the *Times* of May 17, 1885, gave this account of the Panama revolution:

"The Pacific Mail Steamship *Colon*, from Aspinwall, arrived at this port yesterday, and among the passengers were the Second Battalion of Marines, numbering 15 officers and 249 non-commissioned officers and men, and also 12 naval officers, a pay clerk, and 12 petty officers and bluejackets, all under charge of Commander McCalla of the Navy. This was part of the force sent to Aspinwall six or seven weeks ago to preserve order and keep the Panama Railroad open to transit. The First Battalion of Marines still remains on the Isthmus.

" 'Our work on the Isthmus,' said Captain McCalla, 'was simply to protect American property and keep the route from Colon, or Aspinwall, open as an international highway. The health of our men has been good, as a rule, and while we have gained something in color and lost a trifle in weight, that will not do us any harm. It was pretty hot down there and the expedition was not at all one of mock service. The First Battalion of Marines was still there when we came away. At that time there were 100 of them in Panama, 100 in Colon, and about 50 scattered along the route. The government troops are now in possession and there is no indication of further trouble.'

The Marine officers had apparently relished the change from garrison duty to a taste of active service with a smack of real danger in it.

" 'It was no dress parade, I assure you,' said one of them, 'and although we have come back with all our men and in good health, we had three or four weeks of reasonably hard service. Ours was the second battalion sent down, and we arrived at Colon about the middle of April. Colon was a desolate looking place. Everything had been destroyed as thoroughly as though dynamite had been used. There was scarcely a semblance of the ruins which usually mark the scene of a great fire.

" 'Immediately on landing we sent out detachments to take possession of the bridges on the line and all salient points to prevent the revolutionists from occupying or destroying the railroad. That would have been an easy thing to do. For instance, if Prestan had blown up an iron bridge a short distance out from Colon—and there is dynamite by the ton on the Isthmus, imported for use on the Canal—he would have tied up the railroad for months. As it was

he burned a lot of freight cars, 150 or more, and that loss has caused freight to pile up at Panama.

A FAMILIAR STORY.

"As soon as we had occupied the line of the road trains began running. There was an armored car, manned with a Gatling gun and a couple of howitzers, and a detachment of bluejackets on every train. In addition there was a guard of marines and an officer in the passenger cars. This latter was to prevent armed parties from traveling across the Isthmus and to enable the officials to collect the tolls. Squads of insurgents would board trains and attempt to make trouble, and we were continually obliged to use force with them, disarm them, or fire them off the trains. Then we had a company in the depot at Panama, but at first we did not occupy that city. We finally decided to do so as Aizpuru, the chief of the insurgents, was likely to repeat Prestan's incendiarism at Colon. It was a surprise to Aizpuru's people when we marched a force into the plaza and posted Gatlings and howitzers in positions to command the entire city. That Panama would otherwise have been destroyed there is no question. We had a picket line around the city and while we allowed all peaceably disposed people to pass out during the day, we stopped all armed parties and allowed no one to go in or out after dark.

"The first night we had no end of bother, for everybody wanted to sneak out under cover of darkness. A few shots finally convinced them that we were in earnest. The next day nearly every peaceable and respectable person left, and Aizpuru and his adherents alone remained. Then came the big confab between Admiral Jouett and our Consul, Colonels Montaya and Reyes of the Columbian forces, and Aizpuru. The result of it was the virtual turning over of the city to the Columbian forces.'

A RECIPE FOR REVOLUTIONS.

"The way these fellows stir up a revolution,' continued the Marine officer, 'is to muster a number of adventurous followers at a convenient place, and then demand the allegiance of the natives at that place. There is generally no promise of better government, but there is always a threat of pillage in case of refusal. The leaders never pay their followers, but they promise rewards out of the plunder to be taken and the revenues of the government to be

established. Prestan guaranteed to pay his soldiers \$1.25 gold a day, but this payment was simply in his own money, a promise to pay if he succeeded. Prestan is part negro. He is a lawyer and better educated than most of his class and, like all revolutionists, an adventurer. His right hand man, also part negro, and a full-blooded negro, a personal follower of this deputy chief, were sent aboard one of our vessels in irons, and finally turned over to Colonel Reyes. They were tried, convicted of treason, and hanged before nightfall.

"The deputy chief, Pautrizelle, was one of the pluckiest men I ever saw. He expected that we were going to execute him when we sent him on board ship. He said he had taken part in many revolutions and had put away a good many men, and appeared to regard the fact that his turn had come as a matter of course. At his trial he made a statement to the effect that he had nothing to say against the Columbians, but he was a follower of Prestan, and wherever his chief went he went. His only protest was against what he called the interference of the Americans. This negro follower of his, Cocobolo, was a veritable cutthroat, one who went into revolutions for personal plunder. He was the kind that go around armed with a machete and demand your watch and money. If they were not forthcoming at once he butchered you. If he got a watch and money, that was all right. If you didn't have any that was all right. He simply made sure you didn't get away from him with any valuables.

NEW USE FOR A FLAT CAR.

"These two beauties were the first men on the Isthmus to die by hanging. They had heretofore shot their offenders. They didn't even know how to carry out a hanging nor how to tie a hangman's noose. They erected a gallows right across the railroad and ran a flat car underneath the two dangling nooses. They did not put any caps over the two fellows' heads. The negro shook his hat off when the noose was put on his neck, but the chief died wearing his Panama, and died without a struggle save that he drew his manacled hands up to his chest and then straightened them down. There was no drop; the soldiers simply pushed the flat car out from under them.

"We burned considerable gunpowder and stood a good deal of irregular fire from the beggars, who would get a safe distance away

behind a barricade or tree, and then blaze away at our pickets. The exhibition of armed force and discipline, and the fact that there was no uncertainty or hesitation about our movements, accomplished the work. It's not a pleasant place, that strip of Isthmus, and we are not at all sorry to get home. But don't run away with any idea that we were off on a junket.' "

The next sidelight on the revolution that, if it accomplished nothing more, added hanging to the progress of the Isthmus, is reflected in an editorial of the *New York Times* on May 26, 1885. It conjures up the shades of Morgan and other mighty buccaneers who plied their picturesque trade of piracy in the waters that skirt the Mosquito Coast.

"The capture of the brigantine *Ambrose Light* by a United States man-of-war," comments the editorial, "has certainly revealed a suspicious set of circumstances. The offence of piracy on the high seas is very nearly obsolete, with the increasing facility of communication and the transfer of commerce from sailing vessels to steamers. In order to do successful pirating a vessel must be a steamer, and it is equally impracticable for a steam pirate to buy coal in the ordinary way and to establish a coaling station of her own. This brigantine was most likely fitted out for a privateer by Prestan or some other energetic revolutionist in Columbia to prey upon Columbian commerce and incidently on that of other nations. The status of a revolutionist like that of Prestan is so nearly indistinguishable from that of a common thief that if the vessel had fulfilled her commission her crew would no doubt have been hanged as pirates."

BEFORE THE DAYS OF KHAKI.

The closing chapter to contemporaneous comments on the expedition and its successful outcome is found in the *New York Times* a few days later under the department headed National Capital Topics. According to the Washington correspondent Secretary Whitney was then considering the advisability of making changes in the color of the helmets worn by marines on expeditionary service in the tropics, and of the leggings worn by the sailors when landed. "The white helmets," this despatch stated, "and the leggings now used would have made good targets for the insurgents during the recent Panama expedition. They could be seen at long distances when nothing else was visible. Brown has been recommended as a good color by some of the officers on the expedition."

MACHINE GUNS AND AUTOMATIC RIFLES.

Lieutenant Arthur Kingston, U. S. M. C.

Lieutenant Kingston's article is the most comprehensive statement on the development, the characteristics, and the present employment of machine guns and automatic rifles that has come under the notice of the Editor in the volume of recent contributions to the subject. Other articles have traced the subject along similar lines, but they have either glossed over, or have apparently not had access to certain authorities that he has consulted. In addition to his painstaking study of this powerful form of weapon there is appended at the close of the article a description of the latest type of machine gun that has found favor on the European front, the Lewis machine gun. Not only because of its wide employment in actual warfare waged under present conditions, but because of certain features of a distinctive nature that are confined to this gun, we believe that no article on the general subject is complete without a statement of the features of the Lewis machine gun. Its inclusion brings the treatment of machine guns and automatic rifles up to the last stage of their development.

A MACHINE gun may be defined as a weapon which delivers a large number of shots, either by volleys or in very quick succession, at a high rate of fire. The mechanism of machine guns, was, at first, hand-operated, but the modern weapon is automatic in action. The force required to perform the several motions of firing, extracting, and loading, is derived from the powder gases. The automatic rifle—the smaller type of machine gun—approaches in size the magazine rifle and may perhaps replace it as the arm of the infantry through its greater rapidity of fire. The larger types, generally called “pompoms,” fire a light artillery projectile. The medium type, which takes the service rifle ammunition, is the ordinary machine gun of today, and with it this article is mainly concerned.

The earliest machine guns were simply a number of small-caliber guns grouped or bound together for the purpose of obtaining a volley or a rapid succession of shots. The guns so grouped or bound together were mounted on war chariots. In 1382 the men of Ghent had in the field two hundred “*chars de cannon*,” and in 1411 the Burgundarin army had two thousand “*ribaudequins*” fitted with such an arrangement of guns. These “*chars de cannon*” and “*ribaudequins*” were fitted with spikes and scythe blades but mounted on them were two or more small guns. The guns were connected by a train of powder and fired in volleys, thus being at least the forerunner of the modern machine gun.

In the sixteenth century a weapon known as a “barrel-organ gun” appeared, being so named from the number of pipes or tubes it contained. The “barrel-organs” were so large in size, so lacking in mobility, and furnished such an excellent target for the artillery

that their use fell into disfavor. Another reason for their disfavor was the growth in power of infantry fire which did away with the need of these cumbersome weapons.

The next development of the machine gun was a weapon whose four to six barrels were fired simultaneously. Another curio, for such these were rather than useful weapons, was one consisting of four barrels fired from the back of an ass or pony. Here an attempt was made to obtain greater mobility and after the first round was fired it perhaps was obtained by the bolting of the frightened animal.

Rapid fire was easily provided for in the machine guns developed in the seventeenth and eighteenth centuries, but the then existing state of gun-making made impossible the rapid loading which is so essential.

The first satisfactory machine gun appeared in 1861, when an American, Richard Jordon Gatling, produced the Gatling Gun. Later, about 1866, Reffye, in France, came forth with the "*cannon a balles*" or Mitrailleuse.

The "*cannon a balles*" or Mitrailleuse, as produced by Reffye about 1866, resembled outwardly an ordinary field piece, with wheeled carriage, limber, and four-horse team. The gun barrel was in reality a casing for twenty-five rifle barrels arranged around a common axis. The barrels were held together at intervals by wrought iron plates and they were entirely open at the breech. A removable false breech contained the firing mechanism. This false mechanism was held in the firing position by a strong screw consisting of a plate with twenty-five holes so spaced that they came opposite the rifle barrels when in position and thus allowed the points of the strikers to pass through and strike on the cartridges. The plate was turned by hand so that one striker was admitted at a time, the metal of the plate holding back the rest. The barrels were fired in an irregular order so as to avoid any deflection of the bullet by the gases at an adjoining muzzle. Each gun was provided with four chambers, which were loaded with their twenty-five cartridges apiece, and fixed to the breech one after the other as fast as the manipulation of the powerful retaining screw permitted. The rates of fire were "slow" three rounds or seventy-five shots a minute, and "rapid" five rounds or one hundred and twenty-five shots per minute.

The Mitrailleuses frequently failed in action while offering the

same target and requiring the same equipment as a field gun, besides occupying approximately the same road space. The French, for these reasons, finally decided to dispense with them.

THE FIRST INFANTRY TYPE.

The Gatling Gun is then the first real machine gun. It was an infantry weapon entirely, a sort of revolving rifle, and not so close an approach to an artillery weapon as is the Mitrailleuse. The four to ten barrels of the Gatling Gun were set around a common axis and fired in turn when brought into position by the revolving mechanism which was actuated by hand. The Gatling Gun was used in the latter years of the American Civil War and in the Franco-Prussian War of 1870 by both the French and the Prussians. It was also used in the Spanish-American War of 1898.

The Mitrailleuse produced little more than a moral effect. It was cumbersome, a vulnerable target, and incapable of continuous fire because of the method of feeding or supplying the cartridges. The Gatling, while a much more effective weapon, still left much to be desired as a machine gun. Its fire was continuous and could be distributed along the front of a target by traversing, but it could follow infantry on the roads only, and made an easy target for hostile artillery.

Next to the Gatling, the most important of the hand-operated machine guns was the Nordenfeldt, which was principally designed for naval use. In this weapon the barrels are placed horizontally and have no movement. A box containing the locks, bolts, strikers, and spiral springs, one of each corresponding to each barrel, moves straight backwards and forwards when worked by the handle of a lever placed on the right of the gun. When this box is drawn to the rear the cartridges fall from the holder or hopper on top into the carriage simultaneously. When the box is pushed forward the bolts push the cartridges into the barrel, the cocking-catches compress the spiral springs, the lever releases the catches one after the other at very short intervals of time, and the cartridges are fired in rapid succession. With this gun, careful aim can be taken from a moving platform such as the deck of a ship, and at the right moment the barrels may be fired at the object almost simultaneously.

The Gatling, the Mitrailleuse and the Nordenfeldt were machine guns worked by hand-power applied to a lever or hand wheel. The motion of the lever or hand wheel communicated through suitable

mechanism caused the loading and firing of the piece, also the extraction and ejection of the empty cartridge case. In the modern machine gun these operations are all performed automatically by the gun itself. The gun is loaded and fired and the empty cartridge case extracted and ejected either by the recoil of the barrel or from the force derived from the powder gases. In the latter case a portion of the gases from each discharge passes through a small vent near the muzzle and actuates the mechanism of the gun through the medium of a lever or a pendulum.

Henry Bessemer, in 1854, proposed and patented a system for using a portion of the gases of explosion for working the breech mechanism of a machine gun, but it was a very crude and almost unworkable model.

Hiram S. Maxim, an American citizen, born in Maine, but who became a British subject and Sir Hiram some years ago, was the first to produce a finished automatic machine gun of practical value. The patents in connection with this particular class of weapons date back to 1884. The British Army adopted the Maxim, which is operated by recoil—not gas pressure—in 1889, and the British Navy adopted it in 1892.

It is very possible that Bessemer's gun failed because of the powder he had to deal with—"black" powder. The fouling left by the old forms of black powder was apt to clog the moving parts and to choke any small part. With the modern smokeless, the class of powder Maxim had to deal with, these difficulties do not arise.

TWO CARDINAL PRINCIPLES.

The two principles now used in designing machine guns are: first, that of employing a recoiling barrel, and, second, that of using a portion of the gases of explosion. In comparing the two the principle of employing a recoiling barrel has the advantage that the recoil is made to do useful work instead of straining the gun and mount in its absorption. The system of using a portion of the gases of explosion has, though, the advantage in simplicity of mechanism and in the large margin of power for working the mechanism with certainty in all conditions of exposure to climate, dust and dirt.

THE MAXIM GUN.

As the rapid fire of automatic guns generates an enormous amount of heat, means must be provided for cooling the barrel. The Maxim

gun uses a water-jacket surrounding the barrel, but the water heats rapidly and is exhausted as steam. In the clear atmosphere of South Africa during the Boer War the jet of steam rising from the gun made it visible over the veldt for a considerable distance. Again it was an American who did away with this trouble by arranging a rubber tube so as to lead from the escape valve to a bucket of water, thus condensing the steam, saving the possibly precious fluid, and doing away with the tell-tale jet of vapor. The water-jacket of the Maxim gives the gun a heavy cannon-like appearance. At the rear end of the more modern type of this machine gun is a pair of grips of brass, running vertically up the rear of the breech box, and between them is a trigger; a plunger with a milled head. Grasping the two grips, the gun-pointer presses the plunger in with his thumbs, following which the gun fires and continues to fire at the rate of five hundred shots a minute so long as it is supplied with ammunition and the plunger is held in.

The water in the jacket appears to be the only drawback to the Maxim type of machine gun, for it is not always easily procured, impairs the mechanism by freezing, makes it difficult to change barrels, and constitutes a considerable weight. The seven and a half pints of water in the water-jacket are raised to the boiling point by six hundred rounds of rapid fire, that is, in about one and one-half minutes, and if the firing be continued, about one and one-half pints of water are evaporated every thousand rounds. Assuming that the operation is continuous, the rate of waste of energy due to heat expended on the water alone is equivalent to about twenty horse power (294 foot tons per minute). If cooling the barrel by means of water were to be dispensed with, the accuracy of the piece would rapidly diminish, and, after a thousand rounds of continuous fire, the bullets would tumble even at short range. At the present time water is the most effective means of cooling the barrel.

OUR PRESENT GUNS.

The Colt Automatic Gun and the Benet Mercier Automatic Rifle, the machine guns of the naval service of the United States, have no water jackets. An attempt is made to meet the heating, in the Colt, by a very heavy barrel. The barrel is made much heavier than the barrel of a rifle in order to reduce vibration, retard heating and expedite cooling; the greater mass of the barrel causes it to heat more slowly, while its greater surface facilitates radiation.

But it has been found in practice with the Colt, that after five hundred rounds had been fired, a cartridge inserted into the piece exploded in seven seconds, and cartridges placed in the chamber a quarter of an hour later exploded in twenty seconds. The heavy barrel of the Benet Mercier Automatic Rifle has radiating ribs and corrugations surrounding it in order to obtain a still greater radiating surface.

With each Benet Mercier a spare barrel is carried and the crew is supposed to change barrels each five hundred rounds in order to allow the fired one to cool. It is possible to change barrels in a very few seconds. The Benet Mercier, while it has no betraying jet of steam, has the disadvantage of becoming extremely warm after firing a number of rounds of ammunition. When a machine gun moves in actual service, it usually moves without any delay whatever, and to pick up the barrel of a Benet Mercier which has just been fired is about as comfortable as picking up a hot stove with the fire just drawn.

The old Maxim abandoned by the United States in 1908 weighed, with its mount, about one hundred and fifty pounds. The Benet Mercier, complete, weighs close to thirty pounds, while the latest Maxim which is being adopted by the United States Army weighs about one hundred pounds. A machine gun light in weight is much to be desired but because of the stiff recoil developed when the cartridge is fired there must be something substantial to withstand this shock. With a light gun like the Benet Mercier a series of shots quickly jolts it off the mark, calling for a cessation of fire, and a re-alignment of the gun.

MOUNTS AND TRANSPORTS.

Machine guns are variously mounted, according to circumstances, on sleds—in which the gun rests on a frame similar to that of a wheelbarrow—on tripods, or on basket frames. Although the greatest readiness for firing was obtained with guns mounted on two-wheeled carts similar to limbers, which also permitted the greatest amount of ammunition to be carried along, these guns offered such a high target that their use, in an infantry action, was entirely out of the question, leading only to their being quickly silenced. Guns mounted on light tripods possess the least readiness for firing, as the gun must be dismounted during each change of position.

The Germans use a combination of the wheeled carriage and the tripod. The gun rests on a sled; this in turn is supported by the carriage proper, which is wheeled. In exceptional cases the gun may be fired from the carriage, but ordinarily it is fired from the sled, which is detached from the carriage for that purpose.

Pack-horse transport has been considered the most satisfactory system of transporting machine guns. They may be carried for short distances by men. In Belgium exhaustive trials between pack-horse transport and that of wheeled traction by a pair of dogs of a breed known in that country as the Belgian Mastiff have been made. These trials have resulted in favor of the latter and the final adoption of this mode of transportation for the machine gun units of the Belgium Army. Perhaps this is mostly due to the fact that the breeding of dogs for light draught purposes has long been in vogue in Belgium for the purpose of conveying farm produce from the country into the towns. The Belgium machine guns are mounted on light carriages equipped with rubber-tired ball-bearing bicycle wheels.

BELTS AND CLIPS.

The present day machine guns fire the ordinary small arms ammunition supplied to the guns in special containers. In the Colt and Maxim they come in endless woven belts of two hundred and fifty rounds to the belt. In the American Benet Mercier the cartridges come in brass clips of thirty rounds, which feed automatically across the gun from one side to the other. When one strip is exhausted a full one is easily and quickly adjusted to follow it. With each shot the breech mechanism drives a fresh cartridge into the barrel from this clip, or plucks it from the belt and drives it into the barrel. These belts are very carefully manufactured, the material being shrunk, so as to prevent their shrinking when in use. Two men can refill an empty belt with cartridges in about seven minutes while a belt filling machine can refill one in a still shorter time. The refilling is best done by a belt-loading machine as the cartridges must be inserted in the belt to exactly the proper distance to prevent their jamming in the gun.

One of the most unique types of machine guns is the Schwarzlose, which is manufactured at Steyr in Austria and was adopted by the Austrian Army in 1907. The weapon is remarkable for its simplicity. There are only ten main working parts, and any of

these can be replaced in a few seconds. It is operated by the gases of explosion and has a water-jacket that allows three thousand rounds to be fired without refilling. The life of the gun is stated to be thirty-five thousand rounds without serious loss of accuracy. Cartridges are supplied to the gun by means of a belt. The weight of the gun is thirty-nine and nine-tenths pounds.

NINE MAIN TYPES.

At the present time there are nine main types of machine guns in use in the armies of the world, viz:

Maxim.—Great Britain, Germany, Russia, Italy, Portugal, Turkey, Switzerland, and the United States of America.

Hotchkiss.—France, Japan, Belgium, Norway, Sweden, Spain and Portugal.

Perino.—Italy.

Puteau.—France.

Skoda.—Japan and China.

Madsen.—Russia, Denmark (Reyl pattern) and China (for cavalry).

Colt.—United States and by several other countries in addition to the adopted gun.

Benet Mercier.—United States.

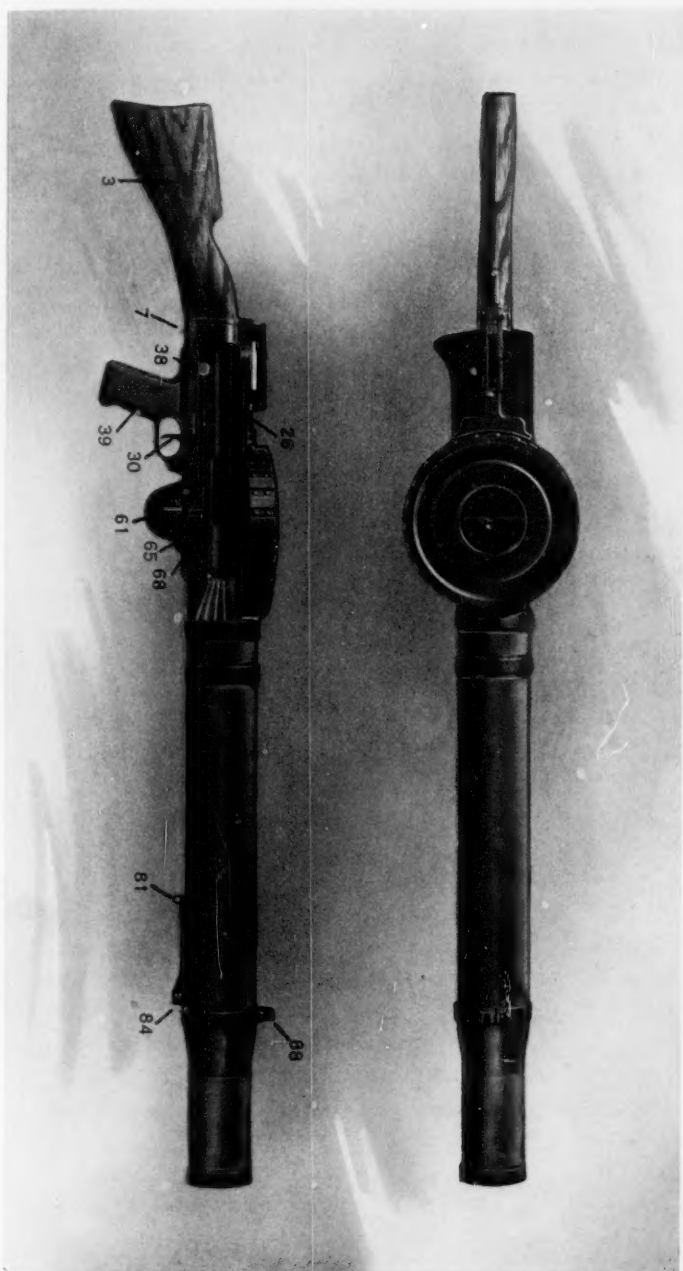
The principle difference between these guns lies in the automatic mechanism and in the method of loading.

As to the automatic mechanism the above guns may be divided into two classes: Recoil action—the Maxim, Perino, and the Madsen. Gas pressure action—the Schwarzlose, Hotchkiss, Skoda, Colt and Benet Mercier. As to the method of loading they may be divided into three classes: Belt loaders—the Maxim, Schwarzlose and Colt. Metal clip loaders—Hotchkiss, Madsen, Perino, Puteaux and Benet Mercier. Hopper loaders—the Skoda.

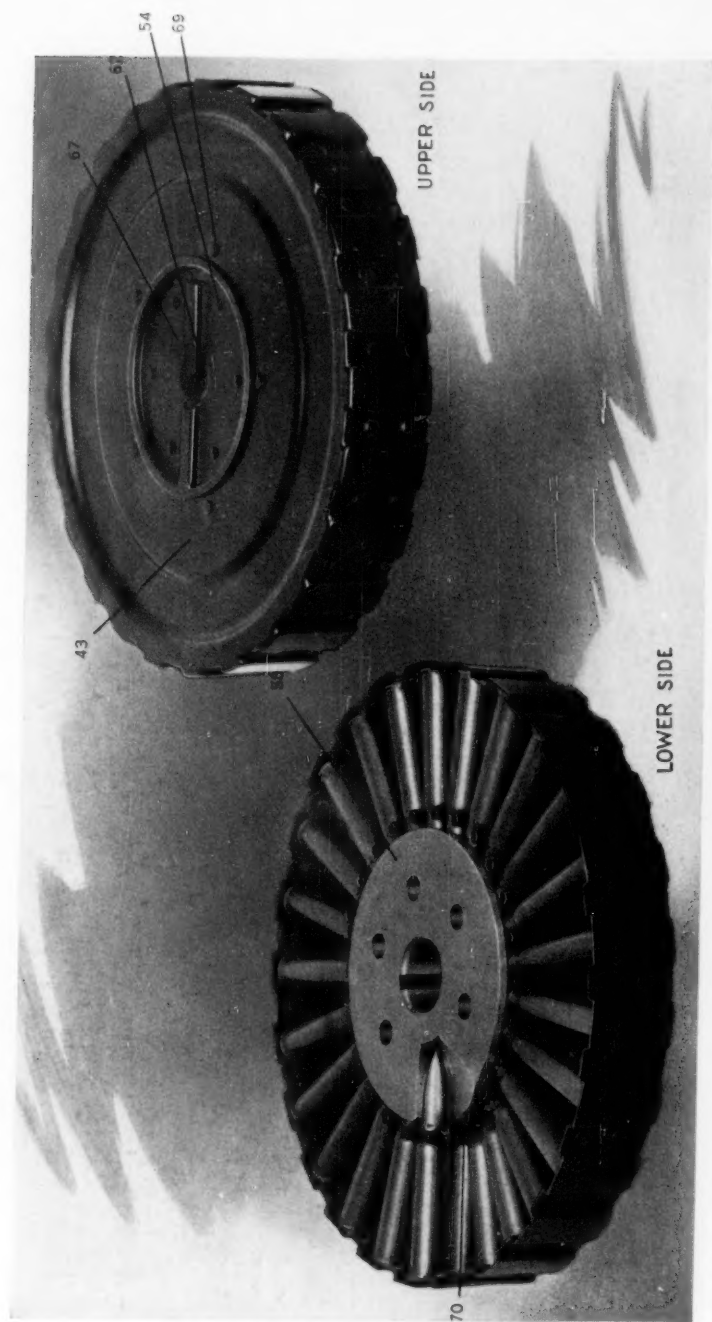
A more detailed description of the above machine guns is given in a book entitled "Machine Gun Tactics" written by Captain R. V. K. Applin, D. S. O., 14th (King's) Hussars of the British Army. The following summary is taken mainly from his work:

AMERICA (UNITED STATES).

Gun.—At present there are four machine guns in use in the United States, viz.: (a) The Gatling. (b) The Maxim Automatic. (c) The Colt Automatic. (d) The Benet Mercier.



GUN COMPLETE WITH MAGAZINE AND RIFLE BUTTSTOCK.



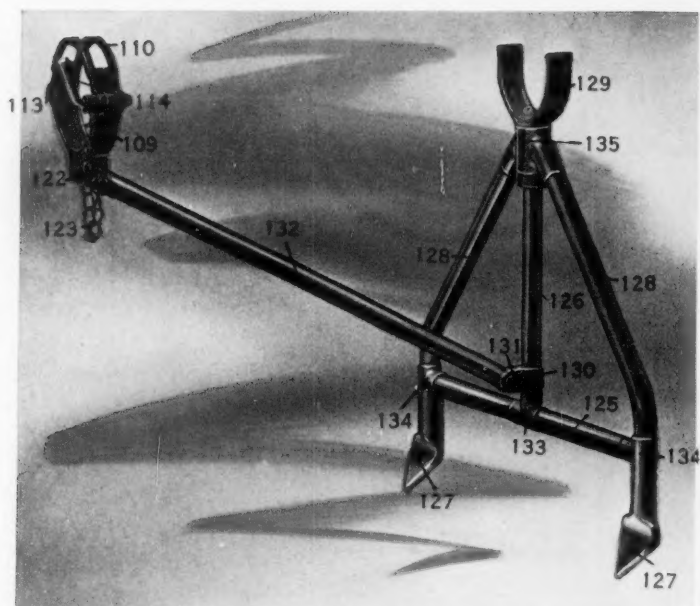
MAGAZINE COMPLETE.

GUN COMPLETE WITH MAGAZINE AND LIGHT FOLDING FIELD MOUNT.



GUN COMPLETE WITH MAGAZINE AND LIGHT FOLDING FIELD MOUNT.

MAGAZINE COMPLETE.



LIGHT FOLDING FIELD MOUNT COMPLETE.



THE LEWIS GUN IN THE FIELD.

(a) *The Gatling*.—Caliber .3 inch, and takes the service rifle bullet. It has ten barrels, and is fed by a rotating cylinder. The gun is mounted on a shielded carriage with limber. The rate of fire is about six hundred rounds per minute.

(b) *The Maxim Automatic*.—Caliber .3 inch, and takes the service rifle ammunition. Has a tripod mount. The transport is by means of pack-animals. A complete outfit consists of five packs, e. g., the gun and tripod form one pack, and the remaining four packs carry 1,500 rounds of ammunition and accessories for the gun, including water for filling the water-jacket.

(c) *The Colt Automatic*.—Caliber .3 inch, and takes the service rifle ammunition. The gun is fed by means of a cartridge belt, and fires four hundred rounds a minute.

The weight is forty pounds and the gun is mounted either on a tripod or a wheeled carriage.

(d) *The Benet Mercier*.—Calibre .3 inch, and takes the service rifle ammunition. The gun is fed by means of a metallic feed-strip. It is fitted with a light mount or rest, easily detachable, and may be fired from the rest or when dismounted. The weight is about thirty pounds.

AUSTRIA.

Gun.—In 1907 after prolonged trials the Austrians definitely adopted the Schwarlose. It is a very simple weapon and very reliable, firing 375 rounds per minute from a tripod mounting.

CHINA.

Gun.—The Chinese have bought a number of Maxims for attachment to their infantry. With cavalry they have adopted the Madsen.

DENMARK.

Gun.—In 1904 Major General Madsen, the Danish War Minister, invented the Reyl (recoil) machine gun. The gun weighs only 13½ pounds, is not much longer than the service rifle, and in case of need can be served by one man. It has a rate of fire of 750 rounds per minute with a muzzle velocity of 2,350 feet per second.

FRANCE.

France has adopted both the Puteaux and Hotchkiss patterns of machine gun without shield. With cavalry the question of mount-

ing has not yet been definitely settled, but experiments have been carried out with wheeled carriages drawn by four horses. The infantry sections have been provided with a tripod mounting weighing seventy pounds, which can be adjusted to two heights, either 1 foot 6 inches, or 2 feet 6 inches above the ground.

GERMANY.

Germany has adopted the Maxim gun. The guns are mounted on sleighs which are themselves mounted on limbered gun-carriages, being clamped into grooves. They can either be fired from the carriage or be dismounted and fired from the sleigh. The gun on the sleigh can be adjusted to fire from a height of 1 foot, 2 feet 6 inches, or 3 feet 6 inches above the ground by a simple lattice-work arrangement. The gun can easily be dragged to almost any position where men can go, and can be fired by men lying down under cover.

GREAT BRITAIN.

The Maxim has been in use since 1889.

ITALY.

The Perino machine gun has been adopted. The barrel is surrounded by a cooling tube containing water, and the gun fires the same cartridge as the infantry rifle. It is regulated to fire 425 rounds a minute and has a maximum rate of 500 rounds. It can be fired continuously with the automatic action or intermittently. It is loaded by a ridged metallic clip containing 25 cartridges, 10 of which clips are formed into a magazine. The gun weighs twenty-seven kilograms and is mounted on a tripod.

JAPAN.

The Japanese have adopted the Hotchkiss, the barrel of which is air-cooled, having seven radiating gills on the breech to absorb the heat. The bore is .256 inch, being the same as the rifle; the weight is seventy pounds. It is regulated to fire at a maximum rate of 600 rounds a minute. It is loaded by brass clips containing thirty cartridges inserted into the left side of the gun. The empties are ejected on the right side. The gun is sighted up to 2,187 yards, with a tangent sight, and is mounted on a tripod weighing forty pounds which has an all-round traverse, and can be adjusted to fire from two heights. Shields were used in the Russo-Japanese War,

but have been discarded on account of their weight. It is probable that a detachable shield, large enough to cover the detachment, will in future be issued with machine guns for use as the situation requires.

Another machine gun used by the Japanese is of home design and manufacture. It belongs to that class in which the mechanism is actuated by gas pressure operating upon a plunger or piston and not by the direct force of recoil as in the Maxim. It uses the same ammunition as the infantry rifle and is rated as firing 600 rounds a minute. The cartridges are fed to the gun by means of a metallic feed strip. Two forms of mountings are employed, the tripod and the wheeled; the former for fortress use, and the latter for mobile troops. The gun weighs about 73 pounds and with tripod 115 pounds. It is sighted up to 2,000 meters.

RUSSIA.

Rexar and Maxim, but the former are being discarded and Maxims alone will be used in the future. They are sighted up to 2,000 yards. The Rexar gun weighs only 17½ pounds and is fired from the shoulder. It is therefore more of the nature of an automatic rifle than a machine gun.

SPAIN.

Maxim and Hotchkiss guns with pack transport.

SWITZERLAND.

The Maxim is the gun adopted by the Swiss Army. There are four companies, each having eight guns, which are sub-divided into sections of two guns each. The detachments are mounted and the guns are allotted to the cavalry.

THEIR PRESENT USE.

According to the *Scientific American* a general attached to the *Ecole Militaire* has summed up the present use of the machine gun in this terse statement:

"The English hold their trenches with the infantry, the French with artillery, but the Germans with machine guns." There is no doubt that the contribution which this war is destined to make to the science of warfare lies in the direction of the development of the machine gun. According to the same authority the Germans started

the war with approximately 50,000 machine guns, and, while that number was approximately accurate then, the number is enormously increased today. Machine guns are cheap. The parts are easily duplicated, and the French general before quoted claims that it is just as easy to make a serviceable machine gun as a rifle. The Allies have increased the number of their machine guns, but the Germans have done the same. Now they are going further, they are virtually substituting men armed with machine guns for the old-fashioned infantry armed with rifles. They are holding their vast line with a very small number of men armed with machine guns protected with concrete work and wire entanglements. Their infantry is only brought up in emergencies, and is not constantly exposed to bombardment. Their machine guns are sheltered by steel plates, and can only be put out of action by a direct hit with a high explosive shell.

The Allies were soon to realize how much ground they had to make up in the matter of machine guns, so in addition to the school of musketry and artillery both the French and the English have established the machine-gun school. It is a place of hard work and quick thinking. It would be inexpedient to dwell on the nature of the work carried on at the school, but the school is in daily touch with every phase of machine-gun warfare at the Front.

As far as the army in the field is concerned, the machine gun is coming into its own, both officers and men who came up for machine-gun training have thrown themselves with the utmost keenness into the new form of warfare which the machine gun has introduced.

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THE LEWIS GUN.

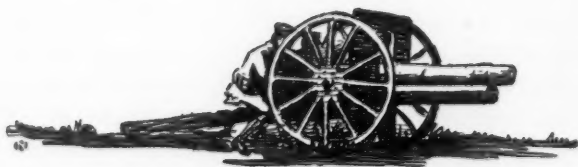
The Lewis gun is air-cooled, with positive feed, operated by gas. On the barrel is a jacket of aluminum, with radiating longitudinal fins, surrounding which is a thin tubular casing four inches in diameter. This casing extends beyond the muzzle of the jacketed barrel, and as the gas explosions emerge in a conical blast behind the bullet they act as a pump plunger would, drawing currents of fresh air along the exterior of the barrel. The efficiency of this air-cooling device is shown by the fact that the gun has been fired for three hours, using 17,000 rounds, before it became overheated. Another interesting feature lies in the magazine, which is of the balanced rotary type, and holds 47 cartridges. The cartridges are fixed radially in it and are fed in by a filler that can be clamped to the gun butt. The magazine is laid upside down over the breech opening, held in place by a pivot stud, and grit and dirt cannot be introduced with the cartridge, nor can sand or rain have any effect as in the belt type of feed.

This form of magazine has the additional advantage of allowing the gun to be fired at an angle of 90 degrees up or down, and gives a sweeping fire of 150 degrees. The recoil is claimed to be less than that of the Springfield rifle, the gases being used to minimize it. In France the troops employing the gun fire it from a light mount that permits the crew to follow the infantry. In detached works a rigid mount is also employed. Another feature that recommends itself is that premature explosions and hangfires are impossible as during the firing, when the trigger is released, the gun stops at the beginning of the forward stroke, so that no cartridge can be left in the chamber. Actual tests, when a single cartridge has been introduced in the chamber by hand, developed the fact that a cartridge so loaded did not explode for more than five minutes after 2000 rounds had been fired in rapid fire. One placed after 500 rounds failed to explode.

The angle of fire obtainable, and the light weight of the Lewis gun, a fraction over 25 pounds, has brought it into favor both as an

anti-air-craft weapon and for manning aeroplanes. The Lewis gun has sixty-two parts and every operation of assembling and dismantling is done with the pointed end of the bullet. In a demonstration witnessed in New York these operations were completed each in a period of two minutes. In the actual firing the light mount, equipped with spade-like feet, dug in at the first few shots, and both the rapid rate of fire and the manipulating of the gun failed to show the jump that is an objectionable feature of other light guns. The removal of the barrel calls for a special tool, the only operation that cannot be performed with the nose of a bullet.

It is also claimed that the rechambering necessary to take the Frankford ammunition has resulted in increased velocity, with its greater range and flatter trajectory. The accompanying cuts of the Lewis machine gun show the salient features that have been outlined above. The gun has been adapted for pack purposes by the use of a special saddle carrying two guns, 1200 rounds of ammunition and a tripod field mount.



THE TACTICAL IMPORTANCE OF BAYONET FIGHTING.

A lecture delivered by Captain R. B. Campbell, Gordon Highlanders, at Deal, before the Royal Marines. Reprinted from *The Globe and Laurel*.

THE big gun is responsible for the bayonet. The only way to get protection from artillery is by entrenching, and the only way to get a man out of a trench is with the bayonet. A man won't leave his trench, for he knows he is safer in it than out; it is the human element which prevails. He argues that while he is "dug in" only about one shell in fifty does any material damage to the trench; he knows his trench is only about three feet wide, a small mark for guns miles away. If he gets demoralised and loses his head and runs out of his trench, he knows that he will come under an overwhelming fire. Every dog will chase a cat that runs. Observe the present position of the two armies, both entrenched within a stone's throw of each other, neither able to move one way or the other.

The present state of affairs cannot go on for ever, the climax must come, and the climax by logical reasoning will be great hand-to-hand battles decided by the infantry with bayonet and knife, with the artillery and cavalry on both sides standing off awaiting the issue, ready to pursue or protect.

Although bayonet fighting is of such tactical importance, and although it requires considerable power and skill to use the bayonet effectively, yet there is no form of training so sadly overlooked.

Good direction with the bayonet is far more important than good aim with the rifle. If you miss a man with the rifle the bullet may hit another, and there is generally time to fire again, but with a bayonet it is different. If you miss your man in all probability you will be killed or put out of action. Also you must get your man in a vital place, the face, throat, upper part of chest, abdomen, or groins. A bayonet thrust in all these places is more or less vital, but what is most important they allow of easy penetration and quick withdrawal. If a bayonet fixes in the shoulder blade the foot has to be pressed against the body before the blade can be wrenched out. In a melee there is little time for anything but pointing or parrying, and if a blade gets stuck in a bone one is left defenceless.

Remember also that in a bayonet melee the fighting is done when in an exhausted state, at close quarters, corps-a-corps, often in the

narrow space of a trench, so the importance of being able to make a true point in a vital spot is most difficult, and the abnormal mental and physical conditions must be realized.

It is essential that the bayonet be used with vigour to allow for penetration and quick withdrawal.

Rapidity in bayonet work is as important as rapid fire with a rifle.

One's liability does not end when one of the enemy is accounted for. There are one's comrades to be helped.

The trench must be cleared as soon as possible in order to meet a counter-attack, which is bound to come. If the counter-attack comes before the trench is cleared, then the attack will have failed. Quick bayonet work is most essential for success of an assault.

Good direction, vigour, and quickness in bayonet fighting requires considerable skill and strength under normal conditions, but it is seldom that it can be carried out in normal conditions.

Take for example a bayonet assault in actual fighting conditions.

Say at four o'clock in the morning an order is received for a regiment occupying a trench, to make an assault at six o'clock on the enemy's trench, about one hundred yards distance.

For two hours all will be in a state of violent nervous tension. The same sort of feeling as one experiences before going in to bat, or before a cross-country run or boxing competition, only a hundred times worse. This tension re-acts on the body, and has a most exhausting effect on it. At six o'clock the dash forward is made. The assault is not made in one long regular line. The human element comes out. The most eager and high strung are off and away first; then comes the mass, followed up by the slow and the prudent. It is a disordered mass which dashes across the open and hurls itself on the enemy. It is not the first contact that decides the fight. The gallant first against the enemy may perhaps die nobly, fixed by many bayonets; they clear the way for the mass. It is the mass who decide the fight. Hand-to-hand, corps-a-corps. The mass must jump in and do the bayoneting in the trench, so as not to mask the supporting fire of the rifles and maxims which will be directed against any counter-attack. The men must learn to kill at the closest quarters.

In many of the bayonet charges that we have made our men have thrown away their rifles for they found them useless. They were too exhausted to use them at close quarters and resorted to their fists, even bit and scratched.

Full and detailed instructions how to train men in the use of the bayonet will be found in "Bayonet Fighting: Instruction with Service Rifle and Bayonet."

The first exercises teach the points and parries and develop the muscles. The use of the discs teaches direction, the constant pointing of the bayonet into sacks filled with such resisting material as turf, sods, straw, etc., develops vigour. The "course," in the assault practice, need not be stereotyped, but may include all forms of trenches, earthworks, etc.

Officers in the infantry are now issued with rifle and bayonet, and all must be able to use them.

In the big battles to come whole brigades and divisions will advance to the assault, and every individual in them must be able to use the bayonet effectively. In the fighting up to now the enemy has concentrated his efforts in picking off the officers, so it will be in a bayonet charge; picked men will be told off to kill our officers. It is the bounden duty of every officer to learn how to use the bayonet effectively, and be physically fit to lead his men in the assault.

Half an hour a day is sufficient. As with physical training, it goes hand in hand with other forms of training. It develops all muscles, it makes one fit, and it is a form of training that appeals to the average Briton. He likes it, and if he likes it, then it acts as a tonic and breaks the monotony of routine.

The more training a man gets, and the more he realises that the bayonet is a deadly weapon in his hand, the greater will be his confidence when it comes to the assault. Every man must be made to feel that he can account for three of the enemy.

Bayonet fighting instruction must be organized on similar lines to the physical training and should be carried out daily if possible. A qualified officer to superintend all the training.

Each officer to have a qualified non-commissioned officer, and all non-commissioned officers trained as instructors so that the smallest units can be instructed by their commanders if necessary. The more instructors the simpler will it be to carry out the training.

In this lecture you have heard nothing new or startling. Your attention has been called to obvious facts, but facts of vital importance. So obvious are the facts that one passes them by and takes them for granted. It is in this complacency that the danger lies. The foundation of all military training, the root of all efficiency, is apt to be put in the shade and neglected by the glamour of field training.

Your common-sense and reason will tell you how these facts must never be lost sight of even for a day.

SUMMARY OF FACTS.

The main points brought to your notice are:—

I. Physical fitness is the foundation of all success in war, and more so in this war than formerly.

II. How essential qualities for success in war can be developed by means of physical training.

III. The tactical importance of bayonet fighting.

IV. Our great natural advantage over the German.

V. The need of keen and constant practice in order to apply this advantage.

VI. That one hour a day be set aside for physical training and bayonet practice—a very small portion of a day's work.



RELIEF WORK IN FLOODED AREAS.

Captain A. M. Watson, U. S. M. C.

THE armed forces of the United States have been called upon, ever since their inception, to perform strike and riot duty, to establish strict quarantine guard about sections stricken with yellow fever, cholera and other epidemics, to reenforce state and municipal police in protecting areas devastated by flood or fire until that duty has assumed certain well-defined methods of procedure. In foreign lands and in insular possessions the Navy and Marine Corps have had to bear the brunt of relief work incident to hurricanes, epidemics and fires. In most of these instances the unusual demands thrust upon the officers in charge, both of the line and staff corps, have called for resourceful action without the helpful background of precedents or regulations. The efficiency with which these duties have been met and discharged is a tribute to the morale and courage of the naval service.

Memorable instances among the general class cited in the foregoing are the earthquake at San Francisco, the labor riots in that city, in Chicago and Baltimore, the hurricanes at Samoa and Guam, and the yellow fever quarantine at Sandy Hook. The most recent instance is that of the floods in Southern California. Each form of relief work has had its own peculiar problems, and the duty of the writer in connection with the great Dayton flood in Ohio has prompted him to detail his experiences in the belief that the general relief measures instituted at Dayton may be of interest and of value to the service.

While on duty in the office of Major Thomas Rhoads, U. S. A., the Chief Sanitary Officer in charge at Dayton, I was enabled to see the systematic and efficient measures which were enforced in the clearing away of the debris caused by the flood and the resultant fire, and in the provision made for quartering and subsisting the victims of the catastrophe.

The Dayton catastrophe followed an unusually heavy rainfall in the spring of 1913, and can be attributed to that cause alone. While the levees along the banks of the Miami and the Mad Rivers and Wolf Creek weakened, and in some places broke, these streams had overflowed the levees before that occurred. Dayton lies in the

Miami Valley. The Miami and Mad Rivers divide it centrally. At least one-half of the city, including almost the entire business section, was submerged by the flood and remained so for three days. The depth of water within the confines of the flooded area varied from six to fifteen feet. The force of the rushing water was powerful enough to overturn dwellings of light frame construction.

The loss of human life was at least one hundred and fifty and hundreds of heads of live stock met the same fate. Property to the value of more than \$100,000,000 was either damaged or totally destroyed. The flood and the fire that followed in its wake were of such an alarming character that the Dayton disaster assumed a national importance and County, State and National forces were rushed to the scene, and private aid was also organized on a large scale.

One of the first and most important things in times of such disaster is to put the entire affected territory or zone under an iron military regime. The establishment of martial law is a phase of the question which I have no intention of discussing.

In connection with and working in harmony and accord with the military, there should be a citizens' relief committee. Such was the case in Dayton; a very efficient one being organized together with State Military Supervision, the Sanitary Department and the Red Cross Relief.

The organization of the relief committee work was under the heads of Department for Distribution of Supplies, Committee on Relief Stations, under which were working the District Managers and the Relief Station Managers. There was also a man in Charge of Visiting Committees in each district who organized a complete registering and checking system. The policy of the committee as to supplies and their distribution was well and clearly stated to all the District Managers in a circular letter dated April 2nd, a partial quotation of which is deemed worthy of mention.

"It will be our policy from this time on to conserve our supplies and only give the proper quantities of food and supplies to persons actually in need. Arrangements are being made to establish means for collecting money from people who can afford to pay, such money to be used in general relief work. We want to bend every effort to supply the actual need of the people in the most economical way. Local station managers must keep carefully posted on their own supplies. In order to get supplies they must requisition on their

district managers. When the District Manager's stock runs low, requisition for more supplies will be made on the department for distribution of same." To quote again, under the head of Visiting Committees, is the following: "It will be the policy to co-operate with the Military Authorities in planning this organization."

The devastated area in Dayton was placed under the military control of portions of the State National Guard under command of Brigadier General George H. Wood. Major Thomas L. Rhoads, U. S. A., an officer in the Medical Department of the Army, was at the request of the Governor of Ohio named as Chief Sanitary Officer on General Wood's Staff. Under his able and efficient supervision the following system was put into effect.

That portion of the city which had been inundated was divided into sixteen Sanitary Districts, each of which was placed in charge of a medical man of experience. These men represented Dayton's best in the medical profession and were all volunteers. They were directed to open a headquarters station in their respective districts, to employ laborers, foremen and teams to clean out cellars and alley ways and remove mud and debris from the streets. A working day of ten hours was announced and wages of \$2.00 per day for laborers, \$3.00 for foremen and \$5.00 for teams were fixed. A green brassard was adopted for the Sanitary Department and all teams and trucks working under it were conspicuously marked in order that they might not be diverted to other work. The district sanitary officers were instructed to requisition on Supply Depots for bedding, stores, lime, wheelbarrows, shovels, axes, mops, lamps, etc., for use in their several districts and were urged to supply the needs of those within their districts in this way. All applicants for assistance coming to the headquarters of the Sanitary Department were directed to report to the Sanitary Officers in their respective districts. Under this system the work of cleaning, removal of debris and the needs of the people were promptly and efficiently handled. When cellars were cleaned, a thorough disinfection with chloride of lime, sprayed on walls, ceilings and floors was inaugurated. The debris, mud, garbage, etc., were hauled to various dumps, later to be burned and destroyed.

In connection with the work of this department, camps were established for refugees, i. e., the totally homeless, and for workmen. These camps were under the command of Medical Officers of the Army and a detachment of enlisted men for guard duty was fur-

nished. In the refugee camps, camp sanitation was strictly observed; privacy was secured, and, where possible, families were kept intact. Camps ordinarily sufficient for one thousand persons were found to be efficient. In the work camps all men were kept in at night. The refugees and workmen were fed by food supplied by the National Government and the Relief Committee.

Nurses, members of various Visiting Nurses Associations and those who reported in from different neighboring cities, were assigned to duty under the District Sanitary Officers in numbers proportionate to the needs of the various districts. They made house-to-house canvasses enquiring into the conditions of the dwelling and the immediate needs to be met with. They made daily reports to their district officers, and all met daily to discuss the progress of the work and the solving of the various problems presenting themselves. Those nurses were paid by the Red Cross. Their work in Dayton was of inestimable value.

The Red Cross relief work was placed in charge of Dr. Devine of New York, who had under him a corps of assistants. A sum in the neighborhood of one and a half million dollars was subscribed for relief work in Ohio alone. Portions of this amount were distributed in Dayton by the Red Cross and the Citizens' Relief Committee, not actually in cash, but in the purchase of foodstuffs, household furnishings, etc. There were established at different portions of the city registration stations in charge of Red Cross officials. There sufferers were enabled to go and make a statement of their losses. After investigation and checkage, insofar as was possible, furniture, bedding, etc., was sent these people, or they were furnished with orders for same on any one of twelve reputable dealers in household furnishings throughout the city.

The work of the Sanitary Department in Dayton played, and necessarily so, such an important part in the general relief scheme that the writer of this paper feels it is almost the most important of the various phases of the work. Through its efforts the work of clearing away the mud and the debris resulting from the high water was rapidly and efficiently carried on. Its work was closely allied, and properly so, with that of the Street Cleaning and Engineering Departments. A close touch was kept on the water supply of the city, public notices being given of various searching tests as to its purity or lack of purity for drinking purposes. Bulletins were printed and sent out by the thousands for distribution to the people.

I quote at length from an especially useful one issued on April 12th, 1913, over the signature of the Chief Sanitary Officer. It was headed "SANITARY CAUTION" and read as follows:

"Garbage:—Burn garbage in stoves or furnaces, or bury it until the collection service is organized. If garbage accumulation is too great to be disposed of by burning or burying it, notify your District Sanitary Officer and arrangements will be made for its removal.

"Housecleaning:—All houses in the flooded section, including cellars and premises, must be cleaned without delay. Householders and owners of property shirking this duty are subject to arrest.

"Plumbing:—Defects in house connections with sewers, breaks in water pipes, and gas leaks, should be attended to at once by securing the services of a plumber. The telephone book will give you the addresses of available plumbers.

"Sewage:—If you were dependent on a latrine that has been destroyed, use a receptacle in the house, cover the discharges with a disinfectant and empty the contents through a manhole in the street into the sewer, until a new temporary latrine can be constructed, digging a new vault if necessary. Comfort stations have been provided over sewers throughout the flooded section. Don't soil the ground. Property owners are directed to comply with the city ordinance requiring house connections with the sanitary sewer without delay.

"Water:—Continue to use boiled water or bottled water for the present. Tap water is not yet safe for drinking purposes.

"Sickness:—Report all cases of sickness at once to your doctor; it may be the means of preventing a spread of disease in your family and among your neighbors.

"Disinfectants:—Used freely, disinfectants will keep down disease. They can be procured at the following stations and at Drug Stores. (A list of ten stations followed.)

"How to use disinfectants:—For washing floors and walls—Cresol or other carbolic acid preparations, using one part of disinfectant to twenty parts water.

For treating vaults, commodes, cellars and putrifying material—Chloride of lime, using one pound of disinfectant to five gallons of water, or use ordinary lime, spreading it freely.

For yards and barns spread lime about freely.

Whitewash your cellars.

For purifying ice chests and closed receptacles of all kinds for meats—Formaldehyde standard solution, one part disinfectant to twenty parts of water.

Large ice chests should be fumigated; apply to Board of Health."

Under the Sanitary Department's supervision public comfort stations were provided. They were placed throughout various portions of the city, being located directly over the sewers and man-holes, all that was necessary being the removal of man-holes and the erection of small shacks over them.

The organization was so complete and thorough, and so completely under the control of the Chief Sanitary Officer that the various details and ramifications were carried out with the minimum amount of confusion. The various Sanitary Officers met with their chief three or four times during the week and he discussed with them new developments and issued orders as they were required. The Department for the week ending April 12th, employed 2,800 men and teams and disbursed for labor and carts alone over \$27,000.00. It can be readily understood that for that period alone real progress was made in cleaning cellars, areas, side-walks, etc.

When organizing the Department of Sanitation the Chief Sanitary Officer issued a circular letter outlining the methods he proposed to pursue in dealing with the sanitary situation. The following quotations from that letter would seem to be worth setting forth and might prove of value to officers who may at some time in their careers be detailed for duty in localities which have suffered as did Dayton.

"The City has been divided in sixteen districts for the purpose of carrying on the work of sanitation and you are hereby appointed District Sanitary Officer of the ——th Sanitary District, the boundaries of which are as follows:

"You are hereby authorized to appoint such volunteer assistants as you may deem necessary in your work; to employ such laborers, foremen and teams as may be necessary to assist in the rapid restoration of houses and premises to a sanitary condition. You will immediately establish a headquarters at some centrally located point in your district, marking it plainly so that it may be readily located.

"You will make a daily report of your operations to the Chief Sanitary Officer in which will be noted the number of cases of sick-

ness in each house, and the diagnosis in each instance, the condition of the sewer, water supply, gas connections, the presence of dead bodies or material which would be liable to cause sickness.

"The Chief Sanitary Officer and his assistants have established an office on the second floor of the Elks Club and your reports should be delivered daily and in person at 4:00 P. M."

The question of the dumps and their relation to the health and sanitation of the city was naturally within the province of the Sanitary Department, and I understand that the burning of garbage and the spraying of it and other dump material with oil with a view of burning it was considered. It will also always be possible to turn portions of the garbage over to fertilizer companies.

Relief work in Dayton began almost as soon as the rising water broke through and over the levees and spread ruin and death in its path. It was at first the relief of individuals by individuals, later of organized groups, and of County, State and Federal Authorities. The country at large was both eager and quick to render assistance and gave bountifully of foodstuffs, clothing and money.

It has been my purpose to set forth with clearness, and at the same time brevity, the work of the Sanitary Department and of relief work in general at Dayton, hoping that a recitation of the methods employed might be both of value and interest to others in the military and naval services. In closing it would not seem unseemly to speak of two phases of the work as carried on in Dayton by the various organizations and forces and which I was particularly able to note:

First, the successful avoidance of a conflict of work, i. e., a thorough co-operation of all concerned. The second applies particularly to the Department of Sanitation. It would seem advisable in similar cases, and under like conditions, to place the sanitary situation in the hands of an officer of the Medical Department, one strong and able and tactful as was Major Rhoads, the Chief Sanitary Officer in Dayton. I am convinced that the organization of the Sanitary Department and the co-operation of the State and City medical men would then be as thorough and as unselfish as it was in Dayton.

PROMOTING EFFICIENCY IN TIME OF PEACE.

Lieutenant C. S. Baker, U. S. M. C.

THE proficiency of the Marine Corps is dependent on the training and ability of the commissioned and enlisted personnel, combined with a good and thorough equipment and serviceable materiel. It is the training of the personnel, both commissioned and enlisted, that this paper deals with, for matters regarding equipment and materiel are not within the province of the line officer of low rank. However, the task of promoting the efficiency of themselves and the enlisted men is one of such magnitude that it will require all the attention of young officers, without allowing them time for the consideration of other matters.

Viewed by the young officer, there are only two things for him to do. He can improve himself, and he can improve his men. Both tasks co-ordinate to a large degree, and an improvement in one is felt by the other. The men directly reflect the attitude and knowledge of their officers. It is for the officer, first of all, to look to himself, to see that he is in every way capable and competent to teach and lead his men, and to attain that state of personal efficiency, the possession of which entitles him to be called a successful officer. While a proficient army must have good and well-trained men, it *must* be led by able, experienced, and educated officers. Neither officers nor men alone will win the victory. Success in battle is dependent upon the combination of both. In time of peace, the most important factor to consider first is the officer because, during the time of peace he trains not only himself, but his men as well. Efficiency of the men is dependent upon the efficiency of the officer. If the officer has attended to his duty, his work is shown by the result he attains—a happy, contented command. Only a well-educated officer who makes his profession his study, who loves it well enough to sacrifice for it all outside pursuits, can hope to achieve a genuine success. So, looking at the problem from the officer's point of view, he may divide his work into two divisions: first, his personal study of the art of war, and second, the work to be done in training his men.

In considering the officer, the personal factor is an important one. The mental and moral qualities of the officer directly effect his

work, for the impressions received by the men under his command are based largely upon his traits of character. It is conceded that an officer should be courageous, but that is not the only trait that he should have. He should be hard-working, patient, and just, and he should develop those qualities as much as possible. An officer who is lazy, unjust, or who is irritable and impatient is a positive burden to the service. Qualities are largely a matter of personal cultivation, and officers, when they enter the service, are young enough to cultivate good qualities and eliminate undesirable ones.

Remembering at all times that they are living examples to their men, officers should be jealous of their honor, proud of the title which their profession and their rank confers, and careful of their reputations. To bring disgrace upon the uniform is an offense punishable by a General Court-Martial, but many things which are done, though not punished by courts, are exceedingly harmful to the reputation of the officer with his men. It should never be said "Nobody saw me but the men," for an officer never should be conspicuous at any time for ignorance or inefficiency, as such exhibitions have the effect of lowering or totally destroying an officer's influence over his men, and impairing his usefulness. The fact that an officer has established a reputation for being useless should be sufficient warrant for cashiering him.

The professional equipment of the officer is of the highest importance. The Marine officer should not only be an excellent infantry officer, but he should be able to perform well other very important duties. The service of the Marine Corps is so varied and so strenuous that an officer never knows what he next will be ordered to do. The only way to perform the work required is to know it all, and *know it well*.

More exacting demands are possibly made upon the Marine Corps than upon any other branch of the military or naval service of this country. Its duties may be classified into three groups, viz: service afloat, with the Navy; service ashore, with the Army; and service ashore, either with the Navy or acting independently. In either of the first two divisions the Marine Corps is in competition with specialists, but its work is not judged the less harshly in case of failure because of that fact.

It cannot be denied that the very existence of the Marine Corps as with any other branch of the service is dependent on its efficiency. Known faults must be corrected. Hitherto undiscovered faults

must be found, their cause located, and they, also, must be eliminated. In time of peace, not war, this must be done. In time of war, no matter how well things have been planned, no matter how flawless the scheme of organization may appear to be, defects will develop. In time of peace, by observation, study, and intelligent action, most faults may be corrected leaving for war fewer defects. The more evils corrected in peace, the less to show up in war. Therefore an officer should never assume, no matter how smoothly things are running, no matter how well trained are his men, that his work with the Marine Corps is through. He must constantly be on the outlook for faults to be corrected.

One of the first things to be learned by an officer who is beginning his career in the service is that he must in many ways subordinate his personal desires to the wishes and commands of higher authority, in order that teamwork, so vital to military efficiency, may be attained. It is difficult at first to do this. Young men do not easily attain that point of mind where they accept philosophically what they consider to be a needless interference with their personal pleasure and liberty; but whether easy or not, the proper attitude towards obedience must be acquired, and the sooner the better. No rebellious frame of mind can continue to exist without disciplinary action being taken. Instant and loyal obedience, without the least indication of complaint or reluctance to obey, must always be given to the commands of senior officers, in order that work may be accomplished without delay and that the example thereby given to the enlisted men will be beneficial. The officer who obeys instantly is in a position to exact instant obedience from his men. They will obey him much more willingly than they will obey an officer who is known to question habitually or evade the orders of higher authority. An officer who argues with his seniors will before long find that the men under his command will attempt to argue with him.

The collective analysis of the character of an officer by the men under his command is astonishingly accurate. It is unsparing and very just. Men know better than the officer himself what his weaknesses are, and will play upon them to avoid unpleasant tasks, to get special privileges or liberty. The officer who wishes to have a high reputation with his men must be careful to set them the best example. If he shows himself to be a careful, conscientious, capable and hard-working officer, just in his treatment of his men,

quick to praise and slow to blame, his men will know it; and though he be strict, even stern, he will have their esteem though they dislike him personally. No amount of friendliness based on kindness or laxity is worth esteem earned by personal merit. Though no officer should attempt to curry favor with his men, he should try to impress them with his merit in order to increase his efficiency.

There is a limit to the time which an officer may be kept in preliminary training, but fortunately there are other professional schools to which Marine Corps officers are later sent. The education and professional standing of marine officers have been greatly benefitted by the courses which some of them have taken at the Army School of the Line and the Army and Navy War Colleges.

While on the subject of these graduate schools, the idea must not be formed that through them alone can improvement be had. Improvement is had through work, and no work, intelligently conceived and thoroughly carried out, can fail to be of benefit. The problems that are studied at Leavenworth are printed and authoritative books on military subjects are always available. The Army Service Schools (not to speak of senior officers) are always ready to advise and criticize. There is no secret of success in military work, for it is well known that success is gained only through hard and unremitting work. The officer who says that he has not had an opportunity to improve himself is only advertising his own laziness and incapacity. Those who are not detailed to one of the professional schools may read and study the campaigns of great commanders, study military history, work out on the map tactical problems, and search into the reasons for the success or failure of military operations that have been accurately recorded. The benefit from study is measured by the amount of hard work put into it, and it matters little where the work be done.

Another subject for study is that of the men who are serving under an officer's command. A little time each day spent in consideration of the men, their weaknesses, and their work will prove to be well spent. A knowledge of human nature is of great value, and it, too, is not a gift, but a form of knowledge which can be acquired by observation and study. All this tends to give the officer a great moral ascendancy over his men, and they feel that he understands them, and wish to assist to the limit of their ability his work, thus lightening his problem of discipline.

One of the benefits of hard work lies in the fact that its results

are apparent to the men; they feel that their officers know their business, and they have the more confidence in them for it. The reputation of an officer is spread throughout the service by the men who serve under him. A man who has established a reputation for efficiency will find at any post to which he goes that his reputation has preceded him.

Fortunately, most of the service of marine officers is done with troops. It is axiomatic that the more an officer serves with troops the better he understands men, and he knows better, therefore, just what they can and what they can not do. If he understands them he will be less apt to demand of them things which are impossible, but he will be able to require all that is possible to obtain.

The final test of the proficiency of an officer is the proficiency of his command as a whole, its ability to do its work well, and the willingness with which it does its work. For a detachment of men to work well as a body it is necessary that they be well trained as individuals. This requires training and instruction intelligently planned and thoroughly carried out, in the course of which it must be shown that the officers of the command are themselves competent, that they know what is best for the men, and that they are working for the success of the whole command. If the officers show this they will get loyal support.

First of all with the soldier comes drill, and it is essential that it be early and thoroughly learned. In teaching drill, close order work and the manual of arms should be first taught. Until this is learned, he should not be taught extended order. The basic principles of military life are best exemplified in close order drill and the manual of arms. Accuracy, precision, and the instant obedience to command which are the striking features of this drill are the essentials of military operations; and teaching men close order drill, besides giving them instruction in those lesser maneuvers by which they are handled, instils in them that ready obedience which later develops discipline, and makes of them soldiers. With well-drilled men instant obedience becomes a habit—that is almost automatic, and is so strongly instilled in the mind of the soldier that he does not think of questioning orders. When men have this frame of mind, it is easy to teach and lead them. Another advantage of this drill is that it accustoms the men to working together in a precise way. When a soldier knows the value of all working together in obedience to one command, he is more willing

to accept orders, for he knows that by so doing better results will be attained. Close order drill teaches therefore, instant obedience, quickness of thought and action, confidence in the abilities of himself, his fellows, and his officers. He becomes accustomed to teamwork, learns its advantages, and eventually gets the spirit of military life. The mental effect of close order drill is tremendous in its importance. It is, most of all, *the* factor which tends to create and further discipline. Its results are so plainly seen and its benefits so obvious even to men who at first find it irksome, that they become imbued with its spirit, and zealous for a correct performance. For this reason, as often as possible, men should be drilled when other companies are present, and should participate in battalion drills, parades, and reviews. It will benefit them because they will wish to make the best showing possible before other troops, and thus strive to correct all faults. At parades the men are quick to notice a slovenly performance, and try to do their best. Competitive drills are good for the same reason. Battalion or regimental drills teach the men the value of unity and coherence of forces.

Although an important subject, close order drill is, when considered with relation to battle conditions, but a means to an end. It is the preliminary training for extended order, which is the order of battle, and which must be thoroughly learned if the soldier is to be prepared for battle. Except in the marches by which troops are brought to the front close order will not be used in modern warfare, for it is certain that men cannot be advanced in close order in the face of the destructive fire of modern field artillery, machine-guns, and small arms. While the advantages of extended order are unquestioned, the difficulty of so teaching it that its lesson will not be lost on the battle field is great indeed. Men under fire become abnormal. They seem to forget what they apparently knew by heart, they become deaf to orders, and at times seem unable to grasp the simplest instructions and commands. With the wider intervals of extended order men lose confidence, and control becomes more difficult. Only what has been ground into them by hard, conscientious and thorough training will be understood and obeyed, and since that is the case men should be so accustomed to extended order drill that they know and obey almost automatically every command prescribed in the drill manual, whether given by voice, whistle, bugle or flag and arm signals. Control, so valuable to the officer,

cannot be retained unless the men obey orders, and they cannot obey them if they cannot understand them.

A thorough study by the officer of the reasons why men "forget" on the battle field would be of immense value to the officer. Besides reading books on the subject, a very practical method exists for finding this out, and it is a way that benefits both men and officers. The combat exercise is the method referred to. When the men have been well taught both close and extended order drill, they should be put through a series of these combat exercises, in order that they put into practice the lessons they have learned, and that their officers, too, may profit by observation of the work and the men.

Simple problems of attack and defense, gradually working up to more difficult ones, longer in duration and requiring larger forces, should be undertaken, and no pains should be spared to make the conditions as realistic and as like those of battle as is possible. In these exercises the whole machinery of battle may be employed, thus testing the efficiency of the entire command. The signalmen and the reconnaissance and sketching parties should be employed just as they would in warfare, giving them valuable training. If these problems have been well prepared the men will first become interested, then enthusiastic, developing useful facts; but the utmost care must be exercised that everything attempted should be both possible of execution and a military probability. A high standard of performance should be required, but the men should never be made to attempt a task manifestly impossible on the battlefield, for that would militate against interest, as the men would quickly detect it and make a joke of the whole matter. Combat exercises, varied with practice marches in which the men are taught the work of advance and rear guards, protecting the flanks, and patrolling, will stimulate interest in a marked degree, and the command will benefit accordingly.

Two other subjects are closely allied to this training for battle efficiency. They are musketry training and training in the use of the bayonet. Both are of high importance. Marines do a great deal of shooting, and much instruction in the use of the rifle is given them. Too much cannot be given. The error into which officers may fall into in teaching this subject is that of devoting all their energies towards training men to be proficient as individual shots, forgetting that success in battle will be attained by securing collec-

tive fire of a high degree of accuracy. A study of Eames' "Rifle in War" would correct any erroneous ideas of this sort, and officers should take steps to teach collective fire and its benefits to the men. There are available for use field firing problems, such as the "Casey Problem", and others may be devised by officers interested in the subject. Just as in the combat exercise, it will be found that the more realistic the exercise, the more the interest in it.

Despite the fact that it has been prophesied at regular intervals that the bayonet would not be used in the "next war", it still retains its place, and a high one at that. It is the final weapon of ultimate success. Men dread the thing they do not know, and men who cannot handle the bayonet fear it, and are not willing to come to close quarters with troops well trained in its use. Once fire superiority has been gained, troops must go forward if victory is to be won, and the knowledge in men that they can handle the bayonet increases their willingness to advance to drive out the enemy. The bayonet is a tremendous factor when troops have come to close quarters. Good training in its use should be given by men who understand the subject, and the men should be encouraged to fence with bayonets by having competitions in bayonet fencing for which prizes are offered. Furthermore the term "bayonet exercise" should never be used, for men object to such a subject under the guise of exercise. It should be called "bayonet training" or "bayonet drill".

Closely allied to the prescribed exercises are athletic games and sports, which benefit the men physically, mentally and morally, and should be encouraged accordingly. Baseball, football, basketball, tennis, and track sports should be allowed and fostered, and teams organized. Competitions should be arranged with teams of clubs, and other companies and military organizations, for in supporting their team the men become a more united body.

Having provided the training outlined above, the basis for the good marine has just been obtained. Other work is necessary if the marine is to be capable of meeting the varied conditions of service in the Corps. This work is his special, his technical training, and it should include every kind of work which he may be called upon to do. The marine can be taught ashore practically every desired subject, except naval gunnery. This is specialized in aboard ship, and the outlines of the training are laid down in the "Gunnery Instructions", but it is not too much to hope for that eventually at least the larger stations of the Marine Corps may have a dotter or

a drill gun which they can use to train men who are to be sent to sea. Gun-pointers and trainers could thus get preliminary instruction before they would be sent to ships, thereby increasing their efficiency.

Boat drill, another sea-going subject, can well be taught at shore stations, as all the stations of the Marine Corps are near the beach. Rowing and sailing can be taught, and some good cutter crews and coxswains developed if boat racing is encouraged and the men allowed to go sailing on liberty.

Signaling is important both afloat and ashore. It can be taught easily, and taught anywhere. Every marine should be able to read messages sent slowly in wig-wag, semaphore, blinker, heliograph, or Ardois, and should be able to send as well. A knowledge of the different flags of the international code is easy to acquire, and the men should know them all. Instruction in signaling is easy to give. The men learn the alphabet readily, and once it is learned proficiency comes with practice. Men who show especial aptitude in this branch of work should have a greater amount of training in it, and should if possible, be given the opportunity to learn the handling of wireless outfits. At least two men and the corporal of each squad should be able signalmen.

At all posts where there are machine guns of any sort officers should teach men their repair, and dismounting. If any of the different sorts of landing guns are available, men should be taught how to take them apart and put them together and if the gun is a Mark VII, men should be trained in setting the sights and the quadrant. With a few dummy cartridges gun drill may be taught. Despite the fact that artillery is specially taught at the school at Annapolis, it might be necessary to organize a battery without having time to train the men there. Non-commissioned officers should be taught the use of the battery commander's telescope.

Useful instruction should be given in field engineering by making the men construct the different types of entrenchments, by building bridges, and by being required to wreck them. The use of barbed wire should be taught, and the men should know how to construct the different types of military obstacles as well as how to destroy them. This work in engineering should be supplemented by lectures, and in these the work of sanitary engineering for camps should be taught. There should be no excuse for the men not knowing the rudiments of camp sanitation.

A fair amount of instruction should be given all the men of the command in the different subjects mentioned above. In the process of teaching them it will be discovered that some men take a greater interest in some subjects than in others, and they should be encouraged to make a specialty of the things for which they show an aptitude and liking. In this way a number of specially trained men will be developed who can greatly aid in the instruction of the less proficient, thus relieving the officers of much work. If such use is made of them, the officers need only supervise their work and watch that they do it well in order that the interest may be kept up. Such men are material for non-commissioned officers, and they should be encouraged to work for promotion.

The reward for time spent in the training and education of non-commissioned officers is great, for their influence on the enlisted men is more direct and therefore stronger than that of the officer. Their relations with the men are more intimate and close, and they can get into the confidence of the privates and give helpful, personal advice. No officer should have under his command a non-commissioned officer who is not both efficient and loyal to him, and no false sympathy should lead an officer to fail in reporting a corporal or sergeant who is ignorant of his duties, or who performs them in a haphazard manner. While requiring efficiency, it must be remembered that unless non-commissioned officers are given opportunities to show it they will not be very desirous of increasing their ability. Therefore they should do all the work that they can perform, and be made to take responsibility so that they may not lose all sense of independence of thought or action. This would be destructive of initiative, which is a valuable trait for a non-commissioned officer to possess. Provided that it is not done at the expense of the training of the men, too much education can not be given the non-commissioned officers by lectures and practical work. They should be especially trained in the work of reconnaissance and military sketching, which are highly important. The principles of camp sanitation, and the hygiene of troops should be taught them, and they should be required at all times to put into effect the principles they have learned, and teach them to the men.

At least the broad outlines of modern tactics should be taught non-commissioned officers, and in lectures on this subject all enlisted men should be allowed to be present. In the event of a war in which the United States would become involved it would become ne-

cessary to increase the size of our armed forces (the Marine Corps would likely be added to by at least a volunteer force) officers would be needed badly. If the non-commissioned officers of the Marine Corps were given a thorough training in the subjects outlined above, they would prove admirable men to hold volunteer commissions, and they should be trained with that idea in view. It affords them a promise of advancement in time of war which would stimulate their work.

Having attended to the training of his men, it is not sufficient that the officer should rest there. There is something more, and it is a vital subject, too. It is absolutely essential that the soldier have a good morale. How this can be imparted and fostered is a great problem which should be carefully studied. With men beginning their first enlistment, what morale they have springs from their patriotism and love of country. The officer in no way should indicate that patriotism is something which he holds lightly, lest he harm the morale of his men. A soldier should be taught that his whole duty is to his country, and that patriotism is the highest virtue of the soldier. The traditions of the Marine Corps exert a great influence on the enlisted men, and these traditions, together with the *esprit de corps* of the older men in the service, tend to give the men a corps feeling that is really wonderful. The older men of the Corps think that they can go anywhere and do anything that a soldier should do. This idea should be upheld and strengthened, and the men made to think that there is no force of soldiers of like size in the world that can stand before them. If this idea is firmly impressed upon them, they will have confidence to attempt tasks that seem almost impossible. Led by officers whom they respect and in whom they have confidence, they will follow anywhere. The gaining of a high morale will in time, combined with training, education and experience, produce a body of men possessed of fine discipline, a high military spirit, and a willingness to perform every duty of the soldier.

From the above it will be seen that to promote efficiency in time of peace it is necessary to develop to the highest extent the knowledge and practical experience of the officers of the Corps, and through them to train thoroughly and educate the enlisted personnel in every branch of work they may be called upon to perform, imbuing them with high military ideals, so that the entire Marine Corps may be welded into a compact military body of high *esprit de corps*.

MARINES SIGNALING UNDER FIRE AT GUANTANAMO.

This story of Guantanamo is reprinted from "Wounds in the Rain," by the late Stephen Crane. This volume is out of print, but through the courtesy of the Frederick A. Stokes Company the GAZETTE is able to reproduce the story, which was one of the first that brought to Stephen Crane his recognition as one of the foremost American writers.

THEY were four Guantanamo marines, officially known for the time as signalmen, and it was their duty to lie in the trenches at Camp McCalla, that faced the water, and, by day, signal the *Marblehead* with a flag and, by night, signal the *Marblehead* with lanterns. It was my good fortune—at that time I considered it my bad fortune, indeed—to be with them on two of the nights when a wild storm of fighting was pealing about the hill; and, of all the actions of the war, none were so hard on the nerves, none strained courage so near the panic point, as those swift nights in Camp McCalla. With a thousand rifles rattling; with the field-guns booming in your ears; with the diabolic Colt automatics clacking; with the roar of the *Marblehead* coming from the bay, and, last, with Mauser bullets sneering always in the air a few inches over one's head, and with this enduring from dusk to dawn, it is extremely doubtful if any one who was there will be able to forget it easily. The noise; the impenetrable darkness; the knowledge from the sound of the bullets that the enemy was on three sides of the camp; the infrequent bloody stumbling and death of some man with whom, perhaps, one had messed two hours previous; the weariness of the body, and the more terrible weariness of the mind, at the endlessness of the thing, made it wonderful that at least some of the men did not come out of it with their nerves hopelessly in shreds.

But, as this interesting ceremony proceeded in the darkness, it was necessary for the signal squad to coolly take and send messages. Captain McCalla always participated in the defence of the camp by raking the woods on two of its sides with the guns of the *Marblehead*. Moreover, he was the senior officer present, and he wanted to know what was happening. All night long the crews of the ships in the bay would stare sleeplessly into the blackness toward the roaring hill.

The signal squad had an old cracker box placed on top of the trench. When not signaling they hid the lanterns in this box; but as soon as an order to send a message was received, it became necessary for one of the men to stand up and expose the lights. And

then—oh, my eye—how the guerillas hidden in the gulf of night would turn loose at those yellow gleams!

Signaling in this way is done by letting one lantern remain stationary—on top of the cracker-box, in this case—and moving the other over to the left and right and so on in the regular gestures of the wig-wagging code. It is a very simple system of night communication, but one can see that it presents rare possibilities when used in front of an enemy who, a few hundred yards away, is overjoyed at sighting so definite a mark.

How, in the name of wonders, those four men at Camp McCalla were not riddled from head to foot and sent home more as repositories of Spanish ammunition than as marines is beyond all comprehension. To make a confession—when one of these men stood up to wave his lantern, I, lying in the trench, invariably rolled a little to the right or left, in order that, when he was shot, he would not fall on me. But the squad came off scathless, despite the best efforts of the most formidable corps in the Spanish army—the *Esquadra de Guantanamo*. That it was the most formidable corps in the Spanish army of occupation has been told me by many Spanish officers and also by General Menocal and other insurgent officers. General Menocal was Garcia's chief-of-staff when the latter was operating busily in Santiago province. The regiment was composed solely of *practicos*, or guides, who knew every shrub and tree on the ground over which they moved.

Whenever the adjutant, Lieutenant Draper, came plunging along through the darkness with an order—such as: "Ask the *Marble-head* to please shell the woods to the left"—my heart would come into my mouth, for I knew then that one of my pals was going to stand up behind the lanterns and have all Spain shoot at him.

The answer was always upon the instant:

"Yes, sir." Then the bullets began to snap, snap, snap, at his head while all the woods began to crackle like burning straw. I could lie near and watch the face of the signalman, illumed as it was by the yellow shine of lantern light, and the absence of excitement, fright, or any emotion at all on his countenance, was something to astonish all theories out of one's mind. The face was in every instance that of a man intent upon his business, the business of wig-wagging into the gulf of night where a light on the *Marble-head* was seen to move slowly.

These times on the hill resembled, in some ways, those terrible

scenes on the stage—scenes of intense gloom, blinding lightning, with a cloaked devil or assassin or other appropriate character muttering deeply amid the awful roll of the thunder-drums. It was theatric beyond words: one felt like a leaf in this booming chaos, this prolonged tragedy of the night. Amid it all one could see from time to time the yellow light on the face of a preoccupied signalman.

Possibly no man who was there ever before understood the true eloquence of the breaking of the day. We would lie staring into the east, fairly ravenous for the dawn. Utterly worn to rags, with our nerves standing on end like so many bristles, we lay and watched the east—the unspeakably obdurate and slow east. It was a wonder that the eyes of some of us did not turn to glass balls from the fixity of our gaze.

Then there would come into the sky a patch of faint blue light. It was like a piece of moonshine. Some would say it was the beginning of daybreak; others would declare it was nothing of the kind. Men would get very disgusted with each other in these low-toned arguments held in the trenches. For my part, this development in the eastern sky destroyed many of my ideas and theories concerning the dawning of the day; but then I had never before had occasion to give it such solemn attention.

This patch widened and whitened in about the speed of a man's accomplishment if he should be in the way of painting Madison Square Garden with a camel's hair brush. The guerillas always set out to whoop it up about this time, because they knew the occasion was approaching when it would be expedient for them to elope. I, at least, always grew furious with this wretched sunrise. I thought I could have walked around the world in the time required for the old thing to get up above the horizon.

One midnight, when an important message was to be sent to the *Marblehead*, Colonel Huntington came himself to the signal place with Adjutant Draper and Captain McCawley, the quartermaster. When the man stood up to signal the colonel stood beside him. At sight of the lights, the Spaniards performed as usual. They drove enough bullets into that immediate vicinity to kill all the marines in the corps.

Lieutenant Draper was agitated for his chief. "Colonel, won't you step down, sir?"

"Why, I guess not," said the grey old veteran in his slow, sad,

always-gentle way. "I am in no more danger than the man."

"But, sir——" began the adjutant.

"Oh, it's all right, Draper."

So the colonel and the private stood side to side and took the heavy fire without either moving a muscle.

Day was always obliged to come at last, punctuated by a final exchange of scattering shots. And the light shone on the marines, the dumb guns, the flag. Grimy yellow face looked into grimy yellow face, and grinned with weary satisfaction. Coffee!

Usually it was impossible for many of the men to sleep at once. It always took me, for instance, some hours to get my nerves combed down. But then it was a great joy to lie in the trench with the four signalmen, and understand thoroughly that that night was fully over at last, and that, although the future might have in store other bad nights, that one could never escape from the prison-house which we call the past.

At the wild little fight at Cusco there were some splendid exhibitions of wig-wagging under fire. Action began when an advanced detachment of marines under Lieutenant Lucas with the Cuban guides had reached the summit of a ridge overlooking a small valley where there was a house, a well, and a thicket of some kind of shrub with great broad, oily leaves. This thicket, which was perhaps an acre in extent, contained the guerillas. The valley was open to the sea. The distance from the top of the ridge to the thicket was barely two hundred yards.

The *Dolphin* had sailed up the coast in line with the marine advance, ready with her guns to assist in any action. Captain Elliott, who commanded the two hundred marines in this fight, suddenly called out for a signalman. He wanted a man to tell the *Dolphin* to open fire on the house and the thicket. It was a blazing, bitter hot day on top of the ridge with its shrivelled chaparral and its straight, tall cactus plants. The sky was bare and blue, and hurt like brass. In two minutes the prostrate marines were red and sweating like so many hull-buried stokers in the tropics.

Captain Elliott called out:

"Where's a signalman? Who's a signalman here?"

A red-headed "mick"—I think his name was Clancy—at any rate, it will do to call him Clancy—twisted his head from where he lay on his stomach pumping his Lee, and, saluting, said that he was a signalman.

There was no regulation flag with the expedition, so Clancy was obliged to tie his blue polka-dot handkerchief on the end of his rifle. It did not make a very good flag. At first Clancy moved a ways down the safe side of the ridge and wig-wagged there very busily. But what with the flag being so poor for the purpose, and the background of ridge being so dark, those on the *Dolphin* did not see it. So Clancy had to return to the top of the ridge and outline himself and his flag against the sky.

The usual thing happened. As soon as the Spaniards caught sight of this silhouette, they let go like mad at it. To make things more comfortable for Clancy, the situation demanded that he face the sea and turn his back to the Spanish bullets. This was a hard game, mark you—to stand with the small of your back to volley firing. Clancy thought so. Everybody thought so. We all cleared out of his neighborhood. If he wanted sole possession of any particular spot on that hill, he could have it for all we would interfere with him.

It cannot be denied that Clancy was in a hurry. I watched him. He was so occupied with the bullets that snarled close to his ears that he was obliged to repeat the letters of his message softly to himself. It seemed an intolerable time before the *Dolphin* answered the little signal. Meanwhile, we gazed at him, marvelling every second that he had not yet pitched headlong. He swore at times.

Finally the *Dolphin* replied to his frantic gesticulation, and he delivered his message. As his part of the transaction was quite finished—whoop!—he dropped like a brick into the firing line and began to shoot; began to get “hunky” with all those people who had been plugging at him. The blue polka-dot neckerchief still fluttered from the barrel of his rifle. I am quite certain that he let it remain there until the end of the fight.

The shells of the *Dolphin* began to plow up the thicket, kicking the bushes, stones, and soil into the air as if somebody was blasting

Meanwhile this force of two hundred marines and fifty Cubans and the force of —probably—six companies of Spanish guerillas were making such an awful din that the distant Camp McCalla was all alive with excitement. Colonel Huntington sent out strong parties to critical points on the road to facilitate, if necessary, a safe retreat, and also sent forty men under Lieutenant Magill to come up on the left flank of the two companies in action under Captain Elliott. Lieutenant Magill and his men had crowned a hill which

covered entirely the flank of the fighting companies, but when the *Dolphin* opened fire, it happened that Magill was in the line of the shots. It became necessary to stop the *Dolphin* at once. Captain Elliott was not near Clancy at this time, and he called hurriedly for another signalman.

Sergeant Quick arose, and announced that he was a signalman. He produced from somewhere a blue polka-dot neckerchief as large as a quilt. He tied it on a long, crooked stick. Then he went to the top of the ridge, and turning his back to the Spanish fire, began to signal to the *Dolphin*. Again we gave a man sole possession of a particular part of the ridge. We didn't want it. He could have it and welcome. If the young sergeant had had the smallpox, the cholera, and the yellow fever, we could not have slid out with more celerity.

As men have said often, it seemed as if there was in this war a God of Battles, who held His mighty hand before the Americans. As I looked at Sergeant Quick wig-wagging there against the sky, I would not have given a tin tobacco-tag for his life. Escape for him seemed impossible. It seemed absurd to hope that he would not be hit; I only hoped that he would be hit just a little, in the arm, the shoulder, or the leg.

I watched his face, and it was as grave and serene as that of a man writing in his own library. He was the very embodiment of tranquillity in occupation. He stood there amid the animal-like babble of the Cubans, the crack of rifles, and the whistling snarl of the bullets, and wig-wagged whatever he had to wig-wag without heeding anything but his business. There was not a single trace of nervousness or haste.

To say the least, a fight at close range is absorbing as a spectacle. No man wants to take his eyes from it until that time comes when he makes up his mind to run away. To deliberately stand up and turn your back to a battle is in itself hard work. To deliberately stand up and turn your back to a battle and hear immediate evidences of the boundless enthusiasm with which a large company of the enemy shoot at you from an adjacent thicket is, to my mind at least, a very great feat. One need not dwell upon the detail of keeping the mind carefully upon a slow spelling of an important code message.

I saw Quick betray only one sign of emotion. As he swung his clumsy flag to and fro, an end of it once caught on a cactus pillar, and he looked sharply over his shoulder to see what had it. He gave the flag an impatient jerk. He looked annoyed.

THE EXPEDITIONARY WORK OF THE QUARTERMASTER'S DEPARTMENT.

First Lieutenant Henry N. Manney, Jr., U. S. M. C.

Reprinted from the *Naval Institute* of January-February, 1914.

AS a foreword, the writer wishes to make it clear that this article is in no way intended as a criticism or derogatory comment on the present preparations of the Quartermaster's Department of the Marine Corps in dealing with expeditions, a subject on which he does not feel himself sufficiently well informed to speak. Rather may it be regarded as the observations and suggestions of a line officer who has been called upon to fill that most confusing of billets, acting quartermaster attached to a unit suddenly organized for duty over seas. It is hoped that these observations and suggestions may be found of value, in view of the fact that the viewpoint of an officer serving in such a capacity would naturally be free from that corps feeling of either line or staff which sometimes leads each department to ascribe any trouble that may arise to the poor headwork of the other.

When one considers that an hour's delay may mean the difference between the peaceful assembly of a force of marines at an advanced base and an armed intervention with attendant loss of life and property—not to mention the cost of maintaining a large force in the field in a foreign country—the first word in expeditionary work is *speed*.

To be sure, we have already obtained a celerity of movement that is a source of pride; but the careful thinker will be forced to admit that it has been obtained in a great measure at the cost of the comfort of the men, which, when all is said and done, is the principal psychological factor of their morale.

Speed, as applied to the subject in hand, may be subdivided under the following headings: Mobilization of personnel and materiel; loading the transport; proper stowing of the cargo; unloading the transport—all of which primarily depend, for their efficient accomplishment, upon the amount of forethought and preparation devoted to them.

Every company officer who has been on expeditionary service knows the disheartening effect of the stowing and restowing of cargo on the eve of sailing, by men already fatigued by long journeys in heavy marching order. This effect is heightened by the

fact that work must be done by hand, without proper mechanical appliances, up and down ladders and in all sorts of odd corners, and with the full knowledge that the next few days will be spent in frantic search for articles needed at once, articles that should have been the last things put on board but which are generally the first on account of their importance, and which have been carefully consigned to the most inaccessible corner of the deepest hold.

When the expedition disembarks, it is necessary to land first whatever stores and equipage may happen to be on top, regardless of the order in which the articles may be needed by the troops on shore. This is no particular disadvantage when the entire force is landing unopposed and in sheltered waters. On the other hand, if it is necessary to sort out a complete equipment for part of the force, if the presence of a stronger body of hostile troops makes it inadvisable to land all the cargo, or if rough weather makes it necessary to reduce the number of boatloads to a minimum, the delay in separating what is to be landed from what is to remain on the ship may seriously affect the success of the expedition.

The evils described above are as apparent as they are prevalent and unnecessary, but will continue to exist until a proper amount of the antidote of forethought and preparation is administered. It remains, then, to consider the ways and means of making the preparations which will result in the attainment of the desired speed with a minimum of discomfort to the men and of confusion to the officers.

Speed of mobilization (of materiel) can be disregarded in this article, in view of the fact that in the future practically all of our expeditions will start from Philadelphia or some other basic point, where equipage and commissary and ordnance stores have already been assembled at a depot. The arrangements already in force at the depot in Philadelphia seem to be excellent and difficult to improve upon, as far as they have been completed. These include the assembly and segregation of the various quantities designed to accompany certain units. Here the work of preparation seems to cease, and the trouble begins when the correct quantity in bulk of all kinds of stores is dumped on the wharf and thrown on board the transport in one grand potpourri, with no eye to the assignment of the accessible storage space to the articles that will in all probability be needed first.

The work of supplying the remedy for this state of affairs should devolve upon the officers on duty at the base depot, whose worst handicap at present is the ignorance of the character of the vessels with which they will have to deal. In the past the choice of the means of transportation has run the gamut of battleships, cruisers, gunboats, and colliers, but in the future we can be reasonably certain of the *Hancock*, *Prairie*, or *Dixie*, as these craft seem to be kept in readiness for duty of that nature.

At this point, while on the subject of transports, a few comments on the ones now in use might not be out of order, although the subject is foreign to this article in that there are none belonging to the Marine Corps nor are there any in charge of the Quartermaster's Department.

The trouble with the ships in present use is that they were neither built nor altered for transport service, nor ever intended to be transports; and there could be no higher tribute to the officers and crews of these ships than the way in which they have cheerfully and efficiently adapted themselves to a service foreign to their profession, and achieved results little short of miraculous. The *Prairie* has no redeeming features as a transport, while the advantages of the facilities on the *Dixie* for baking and distilling are overbalanced by the room taken up by these plants and the machine shops installed for work in connection with the torpedo flotilla.

To return to the work of preparation at the depot: The officers there should be furnished with plans showing all the storage space on all vessels available for use as transports; the number and capacity of the compartments for this purpose should be shown, as also their adaptability for certain kinds of stores as regards shape and ventilation, the shape, size and character of the passageways leading to them, and the facilities, mechanical and otherwise, for filling and emptying them after others have been filled.

The commanding officers of these ships should be instructed that certain compartments are to be reserved for expeditionary stores, and that all ship's stores contained therein are to be removed at the first word of prospective service.

One (or more) of the officers serving at the base depot should be assigned to each particular transport, or rather, to the stores that will be placed on that particular transport, and the storerooms in which they will be placed. It should be regarded as his particu-

lar problem to work out, and he should be held responsible for the successful solution. He should go over the ship again and again, blueprint in hand, until he has a mental picture of the various routes and destinations and the various means of handling every pound of bulk that has been set aside as the impedimenta of the large force that will occupy that ship. His next step should be to divide the storage space into as many districts as there are avenues for filling them, and over each district he should place a reliable non-commissioned officer, requiring him to become perfectly acquainted with his district. Together they should figure out the exact location and strength of the working parties necessary to handle the stores assigned to each district.

From this data a table can be made out, showing just which articles leave the depot first and are stored first, the point at which they will be taken from the trucks and put on board the ship, the district leader to whom they are consigned, along what passage ways they will be handled and where they will be finally stored.

In compiling this table the officer must take into consideration the possible tactical requirements of an expedition by making variations to allow for a flexibility in the distribution. In other words, he must make his arrangements so that the stores and equipment of a company or battalion can be separated from those of the entire force. These preparations having been thoroughly attended to, the depot is ready to load the transport.

Let us imagine that an expeditionary force has been ordered to mobilize at Philadelphia and the officer in charge of the depot has been notified to that effect, the same notification designating the *Prairie* as the transport, and containing the information that the destination of the expedition will be a certain portion of a specified coast. It further intimates that, though the present intention is to land the entire force in one place, it may be necessary for the ship to distribute one or two battalions by companies at various towns along the shore. If the latter course is decided upon, orders will be sent the ship by radio.

The officer in charge communicates with the navy yard by telephone and is informed as to the present berth of the *Prairie*. He also sends for Captain "X," a depot officer, to whom the *Prairie* has been allotted, shows him the orders, informs him as to the location of the transport and tells him to go ahead.

Captain "X" goes to his desk and takes out the file containing the data for supplying the regiment and stowing the stores for

the possible disembarkation of part of the force of the company.

Now let us further suppose that the *Prairie* has been divided into four districts, two of which are fed by cargo ports, and two by cargo booms.

Captain "X" consults his list and telephones the commanding officer of marines at the barracks, requesting that so many non-commissioned officers and men report to Quartermaster Sergeant "A" at such a time, on such a dock, at the forward cargo port of the *Prairie*; so many to Sergeant "B," at the forward cargo boom; so many to Sergeant "C," at the after cargo boom; and so many to Sergeant "D," at the after cargo port. He then assembles the four sergeants in charge of districts, assures himself that they have their lists showing the strength and distribution of the various working parties assigned to them, and gives each the typewritten information showing the order of arrival of each truck at his district, its contents, and where they are to be stowed.

The four non-commissioned officers proceed at once to the *Prairie*, where they station and instruct the working details from the barracks. Large signs numbered "1," "2," "3" and "4" are placed on the dock for the information of the drivers, and all is ready for the arrival of the trucks.

Captain "X" now furnishes the shipping force at the depot with the lists showing the quantity and location of the desired stores, the order in which they are to be loaded on the trucks and the destination of each truck and its load. Having assured himself that the work is progressing favorably, he departs for the navy yard, arriving in advance of, or with, the first truck. Once on the dock, he assumes charge of the loading, remaining as far as possible in a fixed position, to facilitate the receipt of communications, and controlling the situation by means of messengers.

As soon as a truck is loaded at the depot, the driver is furnished with a slip showing the district to which it is consigned, the number of the truckload and the number and contents of the boxes and packages of which it is composed. This slip is received by the sergeant in charge of the district, who checks it off on his list and sees that the stores are started along their proper channels and reach their intended compartments.

By means of a portable telephone, Captain "X" keeps the depot informed of the progress of the work and increases or decreases the flow of stores into each district according to the rapidity with which each district is able to assimilate the quan-

tity delivered. For instance, if district No. 1 should show signs of congestion, the depot would be directed to truck only to the other three districts for a stated period of time. The depot, from its end, keeps Captain "X" informed as to the time that each truck leaves, its contents and destination. In this way Captain "X" can tell from a glance at the check marks on his sheets just what he has on board, on the dock, and *en route*.

By the time that the troops are mobilized, the loading of the transport should be practically completed, and upon its completion Captain "X" turns over to the expeditionary quartermaster the invoices for the stores in bulk, a diagram showing the location of the storage spaces and their contents, the avenues best adapted for breaking them out, and the districts into which the ship has been divided. He further furnishes him with copies of his data regarding the position and strength of the working details, and those showing the order in which stores should be moved to be best adapted to meet possible future tactical distributions of the troops.

The transport having sailed, it now becomes necessary for the expeditionary quartermaster to acquaint himself thoroughly with the data given him by Captain "X." Having done this, he selects men from his department and assigns them to the four districts previously mentioned, furnishing them with the necessary information to enable them to locate and handle without delay any and all articles that may be desired.

The adjutant should be required to detail from the last unit to be disembarked the necessary non-commissioned officers and men for the working details, who should be instructed in the names of the compartments in which they are to work, their location, and the persons to whom they are to look for orders.

The next duties of the quartermaster are to inform himself concerning the means that will be available for transferring his supplies to the shore and to make arrangements to meet any contingency that may arise. If he is compelled to use the ship's boats, he must ascertain which are at his disposal, the capacity of each, and of what each boatload will consist. If other means can be obtained and it is not necessary to use the boats, he should acquaint himself with them well in advance, bearing in mind the satisfactory completion of his task depends on being prepared in advance for any emergency that may arise.

BOOK REVIEWS.

Criticisms Upon Solutions of Map Problems. Compiled by Captain Charles T. Boyd, Tenth U. S. Cavalry.

Book Department, The Army Service Schools, Fort Leavenworth, Kansas. \$2.00; set
Gettysburg Maps for same, unmounted price, 20 cents; mounted price, 35 cents.

As announced in the foreword of the publishers, this book contains the original criticisms of the instructors at Leavenworth upon solutions offered on the sixteen map solutions of Series I and II, Army School of the Line, 1911-1912. The problems and approved solutions are given in full and illustrate the use of troops, batteries and detached brigades. In some cases the reply of the student to the criticisms made appears with the comments of the instructor on that reply. By this method the mistakes made are succinctly pointed out, and the student of Captain Boyd's work profits by the mistakes of others. Under the heading of Battalion and Lesser Problems are considered Patrolling, An Advance Guard, An Outpost, At the River Crossing, A Cavalry Combat and A Field Battery. Under the heading of Brigade Problems are listed Covering the March of a Convoy, A Change in Direction of March, An Advance Guard, A Retreat, On the Flank of the Line of Battle, A Defensive Position, A Position in Readiness, An Advance Guard Action, An Outpost, and An Attack of a River Line.

The following criticism on Captain Boyd's work was submitted for the GAZETTE by Captain George Van Orden, an honor graduate of the Army School of the Line.

"The great value of the Army Service Schools lies largely in the constructive criticisms made by expert instructors upon the work of students. The officer who has not the opportunity to attend these schools is seriously handicapped, as he usually has to depend upon himself alone for the most important and most difficult part of his work.

"The mechanism of solving military tactical problems is not difficult to learn and to practice. After a problem has been solved, the student should always compare his solution with that of an experienced soldier. Every variation from the standard solution should be tested and the soundness of the student's assumption or deduction proved before acceptance or rejection. The fact that the solution of a military problem rests upon assumptions of fact and is the result of logical reasoning, renders it very difficult for the

student to keep an open mind during this part of his work; he is usually a special pleader, more interested in proving himself right than in finding the reason why he is wrong.

"The Army Service Schools have, unfortunately, been unable to establish a correspondence system by which the solutions of problems by students not at the schools might be criticized. Captain Charles T. Boyd, 10th Cavalry, has, in his compilation 'Criticisms upon Solutions of Map Problems,' brought the work of the Service Schools to the general student. Sixteen tactical problems with approved solutions and instructors' criticisms upon the solutions of a large number of students comprise the book. Terse common-sense reasons are given for every adverse criticism. Not only is the student saved hours of searching for the reason why his solution differs from the approved solution without being just as good, but he learns from the experience and mistakes of others. He also learns that the reasons for or against an assumption or deduction are seldom technical, but are almost invariably based upon plain common-sense.

"'Criticisms upon Solutions of Map Problems' should prove invaluable to any one seriously undertaking self-improvement in the solution of map problems."



My Year of the Great War, by Frederick Palmer.

Dodd, Mead and Company, New York. 464 pages. \$1.50 net.

It is an intimate glimpse that Frederick Palmer gives of his year on the French and British fronts in France and Flanders. There is nothing in his tale that savours of the personally conducted tour, and the Corps can vouch from its own knowledge that he is no amateur observer of war. The varied phases that he depicts with the trained intelligence of a professional are vibrant with fire and rich in incident. Whether he is taking potluck in an officer's dugout, chaffing the Irish in their front line trenches, watching the guns and the airmen, or out with the Grand Fleet, he invests his story with a sympathy natural only in a veteran follower of wars.

There are chapters that stand out in his story, despite the high excellence of the whole, like the star shells and the flares which "popped into the sky like Roman candles and burst in circles of light" and whose radiance "lighted the profiles of those on guard, whose faces were half-hidden by coat collars or ear-flaps—imperturbable, silent, marooned and marooning, watchful and fearless."

One of them is Winter in Lorraine. While the reading world was surfeited with stories of the deadlock in Flanders, with its everlasting mud and trenches half-filled with icy water, Frederick Palmer was on a hill in Lorraine where the fighting could be followed as one watches the moves on a chessboard. There he reconstructed with convincing fidelity a battle waged over a terrain twenty times the extent of that on which Gettysburg was waged.

With *The Irish* is another absorbing chapter with its lively portrayal of the "trench-toughened" humorous Irish, and its typical captain. With *The Guns* is a memorable one. In it he has caught the trick of investing a hidden battery with a personality. "These gunners loved their gun; loved it for the power which it could put into a blow under their trained hands; loved it for the care and the labor it had meant for them. It is the way of gunners to love their gun or they would not be gunners..... His dogs of war had become foxes of war, burrowing in places which wise, old father foxes knew were safest from detection..... Think of the last place in the world for emplacing a gun and one may be there; think of the most likely place and one may be there." There is the new battery at work under the critical eye of the general, the patter of artillerymen; their tricks for hiding from the enemy aeroplanes, and the searching fire of their batteries.

It is doubtful if a more thrilling story of an engagement has been written than the chapter on *The Maple Leaf Folk*. Here is the inside story of the Princess Pats "holding down the lid of hell" in the second battle of Ypres. He sums up the story of that terrific fight, where the fine rifle firing and indomitable pluck of the Canadians held their part of the line in the face of three massed charges, against the first employment of gas, with their trenches obliterated by high explosive shells, the cross fire and even enfilade fire of machine guns, and their own machine guns buried time after time and their ammunition at low ebb, in this paragraph: "Eighteen hundred strong they had come out to France; and after they had repulsed German charges in the midst of shells that mauled their trenches at Hooze on that indescribable day of May 8th, one hundred and fifty were able to bear arms, and little Lieutenant Niven, polo player and horseman, who had entered as a private, was in command."

Fresh from the firing line in France Mr. Palmer travels on a destroyer for a "look behind the curtain at the hidden hosts of

seapower," a remarkable opportunity. He gives us a glimpse at the famous "cat" squadron that sunk the *Blucher* at 18,000 yards in Ships That Have Fought. The story of the Falkland fight and Sturdee is covered in *On The Inflexible*. On The Fleet Flagship is notable for its picture of Admiral Jellicoe and in *Hunting The Submarine* he lifts the veil of secrecy long enough to show the seaplanes cruising about for their quarry, and then off to bring destroyers to trap it. He saw the Grand Fleet, outriders and all, put to sea and tells about it with a power that brings out the picture of efficiency and grimness in an irresistible way.

It is a fascinating and absorbing work, and will rank high in the literature of war. For the man whose profession is that of arms it is packed with interest from cover to cover.



The Military Unpreparedness of the United States, by Frederic Louis Huidekoper.

MacMillan Company, New York. \$4.00. 735 pages, 16 maps.

In his presentation of *The Military Unpreparedness of the United States* the author, Frederic Louis Huidekoper, covers the history of the land forces from the siege of Louisburg in 1745 to June 1, 1915. His long study of our military history, his intimate knowledge of the Continental armies, and his reputation as one of the foremost authorities on the campaigns of Napoleon equipped Mr. Huidekoper for the preparedness of his monumental task. There are 556 pages of text, 163 of notes, and in addition to the 16 maps that illustrate the major campaigns in which our land forces have fought is a detailed index.

The scope of his treatment of our various wars, and of the policies followed not only in those wars but in the years preceding each successive war, can be best illustrated by quoting the following table of contents:

Colonial Period, The War of the Revolution, The Lessons of the Revolution, Military Policy of the United States from the End of the Revolution Until the Beginning of the War of 1812, The War of 1812, Military Policy of the United States from the Close of the War of 1812 to the Beginning of the Mexican War, Military Policy of the Mexican War, Military Policy from the Mexican War to the War of the Rebellion, Military Unpreparedness and Policy of the United States During the War of the Rebellion, Military Legislation and Events During 1862 (the same covering 1863, 1864, and 1865), Lessons of the War of the Rebellion and Its Cost in

Men and Money, Military Policy of the United States from the War of the Rebellion to the Spanish-American War, The Spanish-American War, Lessons of the Spanish-American War, the Philippine War, The Lessons of the Philippine War, The Lessons of Our Past Wars, Citizen-Soldiery, Military Policy, Legislation and Events from 1902 to June 1, 1915; The Condition of the Land Forces of the United States at the Beginning of 1915, The Land Forces of the United States as They Ought to Be Organized.

While it is evident that the author regards the two final chapters as the most significant part of his work, the professional student will be most interested in the detailed treatment of the various campaigns. To the average citizen, however, the two final chapters will appear as the most significant by reason of their condensed, yet comprehensive, treatment of the national defenses that lie behind the first line—the Fleet.

Coming at the time when the value of Upton's masterly work is receiving its delayed recognition, Mr. Huidekoper's book will be found of even greater interest. He expands on the work accomplished by Major General Upton's Military Policy of the United States, carrying it up from 1862 to 1915, while his chapter on the Colonial Period treats of the value of the colonial operations in preparing the colonies for the successful issue of the War of the Revolution.

The chapters on the wars preceding the Civil War contain data that were either inaccessible to General Upton or that were overlooked by him, and those on the last three years of that conflict give salient facts that have never before been presented in a condensed space. The same painstaking verification of all statements is shown in the treatment of the Spanish War, the Philippine insurrection and the lessons to be had from these campaigns.

The work is invaluable as an authoritative reference and would be equally invaluable to the library of every student of the military art.



The Invasion of America, by J. W. Muller.

E. P. Dutton and Company, New York. 352 pages, 3 maps, 21 illustration. \$1.25.

The A B C of National Defense, by J. W. Muller.

E. P. Dutton and Company, New York. 215 pages. \$1.00.

The first-named volume, as a subtitle announces, is A Fact Story Based on the Inexorable Mathematics of War. The invasion is

staged in New England, the hub of our industrial efficiency, where shipyards, munition factories and networks of railroad and steamship lines predominate to a greater extent than in any other community. Mr. Muller elects as the invader a first-class power that emerges from the European War with its fleets and transports practically intact and a huge army of veterans. All through his interesting story of this fancied war he fortifies his recital by references to recognized authorities or by citation of official reports.

The enemy fleet first shells the coast from Maine to southern New Jersey, and seizes Block Island as a base of operations from which to strike at New England points. One hundred thousand men are landed on the coast of Rhode Island between Point Judith and Watch Hill, and the regulars and militia are able to offer but feeble resistance to their advance. New England falls into the hands of the invader and with it its great store of industrial equipment. There follows a paralysis of American industries and finance, and New York and Boston fall before the combined operations of the invading army and navy.

With scrupulous attention to details the author develops the theme of the invasion, and at the same time imparts to his array of statistical matter, and his carefully supported exposition of the inability of the American forces to cope with the disciplined foreign expedition, a touch of realism that borders on a story of pure fiction. The numerous illustrations are in the form of photographs showing military and naval operations, and are well chosen to fit the text.

Eight months after the seizure of Block Island as a base, when the military resources of the United States are beginning to make headway against the invaders, the army of occupation reembarks in good order. In the meantime, however, it has exacted tremendous tributes from the great cities of the Atlantic seaboard, and recouped itself for the expenditures of its European conflict.

Mr. Muller's picture of invaded America is well worth the reading. The following paragraph is well worth quoting from the foreword contributed by former Brigadier General John A. Johnston, U. S. Army: "Every scene so graphically described by the writer of this book will find its duplicate in the mind of the reader who has kept himself informed of the occurrences in the European fields of war."

The A B C of National Defense, as its title indicates, is written

with the main purpose of awakening interest in the average American citizen to the problem of defense. With admirable simplicity he outlines the functions of the fleet, the coast defenses and the mobile army, and their relation to the problem of defense against invasion from overseas. The greater part is allotted to the fleet's work. He makes clear many confusing points that beset the civilian mind, and his chapters on dreadnaughts, battle cruisers, destroyers and submarines are especially timely. He also handles with skill their combined operations in war.

In the chapters devoted to our harbor defenses he follows the same method and closes his admirable work with a chapter on the mobile army and a discussion of the various plans advanced for the reorganization of the land forces. Brief as Mr. Muller's contribution to the great subject of national defense is, it bears the stamp of much study and of accurate deductions. It is doubtful if the subject has ever been presented in better form.



DISCUSSION ON A PLEA FOR A MISSION AND DOCTRINE.

COLONEL CHARLES A. DOYEN, U. S. MARINE CORPS.—I feel a hesitancy in commenting on an article bearing on a subject to which I have previously given so little thought, though in reading it I can see that a subject of great importance has been neglected by the Marine Corps.

I heartily agree with the writer that the general mission of the Marine Corps is to cooperate with the Navy in peace and war to the end that in the event of war, the Marine Corps would be of the greatest value to the Navy, and I would add: In this way the Marine Corps can best fulfill its duty to our country; as the Navy is the country's greatest bulwark for preserving its integrity, and freedom from invasion and conquest.

Under the heading of "Leadership" in the article is found the following: "Of prime importance is a study of psychology and its relation to Discipline and Morale," and again under the heading of "Discipline" are found the two following paragraphs:

1. "A study of the best method to be employed in obtaining excellent military discipline implies a study of the Psychology of Suggestion and its application to military life."

2. "The study of this important subject (psychology) by all commissioned officers of the Marine Corps should be made imperative; a proper course of study being outlined in General Orders."

In these three paragraphs above quoted, the writer, in my opinion, has hit upon the most important factor connected with attaining the highest state of discipline and morale.

By Psychology, in the sense in which the writer uses it, evidently is meant the science of the mind and its relation to the physical body; and the importance of a knowledge of the powers of the mind; how to develop and use them to get the best result in training and developing men, cannot be overestimated.

All training and education in every walk of life are transmitted from the instructor to the pupils fundamentally by suggestions, either verbally, by example, or both. The reception of commands from superiors, the commands we give, are suggestions; and the best instructor, leader or superior, is the one who has the ability to adapt his suggestions to the minds of his subordinates, he who can

best get and keep in touch with the minds of, or, in other words, the characteristics of his subordinates. Such an one will have his commands and instructions readily received and promptly and cheerfully obeyed, while another will set forth his in such a manner as to arouse a spirit of resistance and resentment.

The article is most important and timely and calls for action along the lines indicated in it.

COLONEL ELI K. COLE, U. S. MARINE CORPS.—The article in question is well worthy of careful study, particularly as it points out certain things without which no military service can attain that degree of efficiency which will enable it to put forth its full powers when called upon to carry out its *mission*.

It is considered that the definition of "Efficiency" as given is incomplete and also misleading: a much truer result will be obtained if the word "results" is qualified by the word "desired", for as written it permits too many side issues, and is apt to cause one to forget at times that the goal for which we are striving is expressed by the *main mission*.

In view of the peculiar status of the Marine Corps, i. e., that of a part of a larger organization, its mission is bound up with that of the Navy, and is dependent to a large extent upon the *mission* of the Navy itself. It is true we have many side issues or missions in time of peace, but it is believed that, to a certain extent, the training to bring about efficiency in the *main mission* will enable the side missions to be effectively carried out.

But, efficiency requires constant training under intelligent direction along the lines of the work required, and when an organization is prevented from receiving proper training for its *mission*, either the *main mission* must be neglected, or the proper remedy applied: the remedy is self evident.

Before adopting a policy wise statesmanship requires that a careful study be made of the opposition such policy will engender, and this determined, the question must be asked "Have we at our disposal the force necessary to carry out such policy in case any power deems it wise or to its advantage to oppose it?" If the answer is "No," the policy must be modified, or the necessary force provided to do otherwise is to court disaster.

The question of proper doctrines for the Marine Corps is bound

up with its mission and with the developments of modern warfare—we are already indoctrinated with one desirable attribute which may be called the doctrine of "Readiness for immediate movement."

No force, military or civil, can live up to its doctrines until the individual has learned that his individual ideas must be subordinated to those things which, after mature deliberation are considered to be for the good of the organization as a whole—nor until individuals learn this can the Corps hope to be provided with properly balanced material and personnel.

LIEUTENANT COLONEL H. C. HAINES, U. S. MARINE CORPS.—Major Russell's able article "A Plea for a Mission and Doctrine" opens a subject, the importance of which cannot be overestimated, and to which too little thought and study have been given by us. It is not proposed here to take up in detail the article referred to, but to consider in a general way the methods by which its two main features—the "Mission" and the "Doctrine" may be accomplished.

I agree with Major Russell as to what is the "General Mission" of the Corps, but it would seem that the foundation of the "Mission" should not be left to Marine Officers alone, inasmuch as the most important part of the Mission is "cooperation with the Navy." Our ideas and those of the Navy may differ radically as to the manner of this cooperation, and a Mission which will be satisfactory can only be arrived at by an exchange of ideas.

It is suggested that the board referred to by Major Russell, draw up the Mission and that the result be submitted to *all* the Field officers of the Corps with a request for comment; that the board consider all such comments and then formulate the Mission, which should be submitted to the Naval War College and General Board for further discussion and adoption. When approved by the Commandant the Mission can then be adopted by the Corps.

The formulating of a "Doctrine" presents a more difficult task, especially in the absence of a General Staff. As the Doctrine is a matter which primarily concerns the Corps, it should be formulated by a special board of Marine Officers preferably selected from graduates of the Army War College, and then submitted to the Corps for discussion and suggestion, all of which should be considered by the Board before making its final report. While it is

appreciated that such a Doctrine may not be perfect, this fact should not discourage us to the extent of not adopting any.

In conclusion, it is believed that great good would be accomplished if the Commandant requested from *all* officers an essay on the subjects of Major Russell's paper, such essays to be submitted to a special board, and the best, or two best published in THE MARINE CORPS GAZETTE. Many valuable ideas might thus be obtained, and if nothing else was accomplished it would stimulate a habit of thought and study upon these and other vital questions.

COMMANDER C. T. VOGELGESANG, U. S. NAVY.—I am very much in sympathy with the spirit that prompted Major Russell's paper on "A Plea for a Mission and Doctrine."

Every human activity is dominated by a Mission, and upon a correct understanding and interpretation of that Mission will depend the progress and the success of that activity.

Major Russell's plea is for a clearer conception of the fundamental mission of the Marine Corps, and for a more universal acceptance of that mission on the part of all officers of his Corps.

He has stated his conception of the Mission of his Corps. That statement may seem to many to be too restrictive as in my judgment it is; but that is only an indication of how necessary it is to come to a definite conclusion on that essential point.

Is there on the part of naval officers a clear conception of what the real fundamental mission of the Navy is? Has not the real mission of the Navy become so obscured by undue magnification of its less important functions as to be no longer recognized by most of us? Is not the fact that we have so often and so completely lost sight of our real mission responsible for nearly all of the ills that have in the past and continue in the present to block the Navy's development and progress along right lines?

War is the reason for the existence of a Navy. The all-encompassing mission of the Navy must therefore be, to be efficient for war.

How can we know what constitutes efficiency for war unless we know and understand war, unless we are educated to a proper concept of war?

I conceive the general mission of the military establishment of this government, the regular Army, Navy and Marine Corps, to

be—*highest efficiency for war*. With that as our common mission and with education and training consistent with the attainment of that mission, each element of our military strength will, in its own peculiar field of activity, develop not a doctrine, but will become indoctrinated in the proper application of the essential principles that govern in successful military operations.

Through constant and consistent education, training and practice in the Art of War and by no other means can we become fit to win. Every effort that does not contribute directly to that end is a wasted effort.

By all means, then, let us arrive at a common understanding of our real mission, and of the value of doctrine in the conduct of war.

LIEUTENANT COLONEL LAURENCE H. MOSES, U. S. MARINE CORPS.—The efficiency of an organization, civil or military, is measured by the degree to which it develops and coordinates the available powers of its constituent units, in order to secure certain desired results. Any intelligent plan for increasing efficiency must therefore be based on a clear understanding of just what results are desired—or in other words on the *raison d'être* of the organization.

Ceteris paribus an organization can be brought to a higher degree of efficiency the more the results aimed at are restricted in scope—that is the more specialized along definite and narrow lines.

Possible specialization for us is necessarily limited by the fact that the Marine Corps is an auxiliary body whose aim should be to cooperate as fully as possible with the Navy, in all its varied activities. This fact is basic, and should never be lost sight of. Any plan that aims to so train or organize the Marine Corps as to render it less fit to act in conjunction with the Navy is based on a false idea of the object for which the Marine Corps exists.

Just how the Marine Corps can best assist the Navy is a matter for careful consideration, for it is obvious that the more clearly the probable demands can be foreseen, the more intelligently and efficiently can the necessary preparations to meet these demands be made.

The best guide to the probable future demands on the Corps is a study of the service rendered in the past, with consideration

how in each case such service may be developed and extended.

The Marine Corps assists the Navy at shore stations, at sea on the fighting ships, and in land operations over-sea. Possibly new demands may arise in the future, but for the present, the policy should be to extend and perfect the service rendered along each of these three lines.

Doctrine for an independent body is useful and is necessary for high efficiency—but the doctrine taught to an auxiliary body should be that adopted by the body to which it is attached. To adopt an independent doctrine of its own would render the Marine Corps less fit to serve with either the Army or Navy.

LIEUTENANT COLONEL JOHN T. MYERS, U. S. MARINE CORPS.—I have read Major Russell's article with a great deal of interest and find myself in agreement with most of his conclusions. To take first the question of the General Mission of the Marine Corps I would amend Major Russell's conception of the mission to read: "To cooperate with the Navy, in peace and war, to the maximum possibilities of our efficiency," and our doctrine should be such as to insure that efficiency being at its maximum *all the time*.

Time was when Marine officers could be heard advocating the bodily transfer of the Marines to the Army, under the apparent impression that the principal work of the marine was that of an infantryman, and also somewhat on account of the "personal equation," some officers feeling that the marines would be better off under the War Department. The writer has always felt very strongly that if the marines were ever to be taken off the sea-going ships of the fleet, the efficiency of the Corps would be tremendously reduced through the loss of the sea training and the "sea-habit" and the principal reason for the separate existence of the Corps would disappear. Today, however, I do not think there are many officers whose idea or conception of the Mission of the Corps will differ radically from that set forth by Major Russell, and I consequently do not see the necessity of convening a board or a conference to deliberate upon the same.

In regard to the study of psychology the writer is in full accord with Major Russell, and believes that when such a course of study is outlined and prescribed, that all officers of command rank, who are ordinarily exempt from the studies of the garrison school,

should be required to take the course and report having done so. By this I do not mean that they should attend the school but should "read, mark and inwardly digest" the subject matter in the privacy of their own offices.

So far as "Morale" is concerned, the writer believes that we have already growing in our garden a pretty hardy plant, known as *esprit de corps*, and that if we assiduously nourish and care for this plant it will yield us ample fruit in the shape of Morale in the years to come, as it has done in the past. If we will always hold fast to the thought that we of the Marines will perform the task assigned us just a little bit better than any one else can do it, and then *deliver the goods*, we can feel reasonably sure that our Morale is in good healthy condition.

Major Russell's arguments as to the necessity for the formulation of a Doctrine appear to be unanswerable, and it is believed that the thorough understanding and appreciation of a Marine Corps Doctrine by all officers would render the Corps more efficient, and of greater value to the Naval Service and our Country.

MAJOR GEORGE C. THORPE, U. S. MARINE CORPS.—Major Russell discusses three principal topics: (1) Military Organization in the abstract; (2) a Marine Corps Mission; (3) a Marine Corps Doctrine.

Under the first he has stated: "The analogy between a Great Business and a Military Organization is especially close." Would it not be better to say, "A Military Organization is a great business?" Without quibbling, the distinction is important because none of the most conservative school would deny that there are, indeed, many analogies between business (as referring to commercial negotiations) and the business of war, but there are many who contend that the profession of arms should not be made *too* industrial. When asked what they mean by *industrial* and to indicate the injurious elements thereof, that are feared, they find no little difficulty, yet feeling they "do not like the idea of mixing up business with the military." One point they make is that the military personnel is getting to think too much of the money remuneration and too little of serving for the love of the service. However much virtue there may be in this point, does not its proposal overlook the practical necessity of harmonizing methods with existing conditions instead of attempting to project an organization that might be adaptable to some future idealistic sociological state? Some time,

no doubt, in the dim hereafter, men will serve for the love of work; at least sociologists tell us so; but as the overwhelmingly predominant motive for work in existing society is personal advantage, the military organization must be shaped to meet that demand if the organization is to succeed in drawing to it the services of the normal elements of existing society. Military organization, exactly the same as a commercial business, is a problem in the "division of labor," and the provision of personnel therefor, for the attainment of a definite object. That problem is solved in the interest of efficiency in proportion as its solution eliminates duplication and waste. That warfare is business is argued by most modern writers. As to that, one has only to read Mahan and Corbett to note that the war problem reduces itself to a question of controlling communications. Furthermore, it is becoming clearer every day that the causes of wars is *business*. Warfare is therefore an element of business—the protector, advance guard, rear guard, and flanker—of business. As an illustration of the application of businesslike methods, we find gun crews trained at loading drills to eliminate unnecessary motions for the sake of rapidity of fire. The personnel of fighting machines are learning that war is so much a business, and competition so keen therein, that all lost motion must be remedied if one is to hope to win.

As to the second topic, there certainly can be no quarrel with the author in his lucid argument emphasizing the importance of determining the Mission of the Marine Corps, for concentrated effort is a corollary of fixed objective.

But has the author presented a General Mission, or even a Mission at all, in the technical sense?

The purpose of the Mission, whether General or Special, is to assign a task. But the Mission proposed merely suggests a state of mind. It does not give sufficient notice to the Head of the Marine Corps, anymore than a Mission for the Navy "to cooperate with the Army" or "to cooperate with the Marine Corps" would be a sufficient strategic direction for the Head of the Navy.

Another objection to the proposed Mission is that it does not correspond with the probabilities, for there is every reason to believe that, in the future, as in the past, the government will have occasion to employ, most advantageously, the Marine Corps quite independently of the Navy, as, for example, in cooperating with the Army when the Navy is not employed, or independently in sup-

pressing riots or giving security in such cases of public disaster as was the San Francisco earthquake.

As to Doctrine: this is a coined expression in military parlance; military authorities widely differ as to its significance; there is an open field for discussion as to what it should mean.

Presumably the expression was coined to fill a void in military vocabulary. It is of much later origin than such expressions as "fixed military principles," "morale," "policy," "organization." Hence, it means something other than these.

It is not necessary to be indoctrinated to be saved from the blunders of violating established military principles, e. g., to "concentrate for attack," "operate on interior lines," or to give certain commands prescribed in drill regulations to effect certain formations. On the contrary, Doctrine serves to advise as to when departure may be made from fixed principle, or to indicate a course of conduct not covered by such fixtures. Very often, in the solution of tactical problems, more than one solution is said to be sound; so in practice, often alternative dispositions, each in harmony with principles, promise success. Indoctrination will determine the selection. For example: General A sends forward orders to the Advance Guard commander, Colonel B, and to a flanking detachment, Colonel C. Now, B and C, being indoctrinated (i. e., able to estimate situations through General A's eyes), will meet rapidly changing situations, necessarily not covered by General A's orders in detail, by decisions characteristic of the Doctrine of General A's command. If Generals A, X, and Y, have had their tactical training and education in the same War College their Doctrines will be alike, their subordinates will be similarly indoctrinated.

Doctrine, therefore, in the military sense, is something complementary to fundamental principles, and may be defined as a particular set of opinions held as a guide to action by all members of a command, if indoctrinated, in cases not determinable by fixed military principles, so that the will of the supreme commander must, in every part of his command, be promptly executed in the same manner as if he were himself present and acting.

With this view of Doctrine, instead of saying that the Marine Corps needs a Doctrine, it would seem more appropriate to say that by means of a standardized educational system the Marine Corps would become indoctrinated.

CAPTAIN EARL H. ELLIS, U. S. MARINE CORPS.—I have read with great interest "A Plea for a Mission and Doctrine," by Major Russell. It is a fine paper. However, it leaves in my mind questions regarding three most important things for a military organization. Have we no mission? Have we no policy? Have we no doctrine? In answer I must say that we have all of these: that is, to a certain extent, and we are progressing every day.

The General Mission of the Marine Corps has been determined, but it emanates from the General Board of the Navy, as approved by the Secretary of the Navy, as is proper. I have seen the mission enunciated in writing by the Major General Commandant, a member of the General Board, in this fashion:

"The Mission of the Marine Corps is to support the Navy by serving on board naval vessels, and by performing the land operations necessary for the successful prosecution of war by the fleet."

In other words, the purpose of the naval service is to fight, and the purpose of the Marine Corps is to help the Navy win. Of course, the Navy must keep us informed as to its intentions to secure our best cooperation.

The Policy of the Marine Corps, as I have known it, may be best stated in these words: "What you know that you must do if by doing it you can increase naval efficiency, and for God's sake do it quickly." It is a good policy. And so there are marines doing their regular duty, standing a naval radio watch, running a naval launch, furnishing marine-made maps to the Navy General Board, for the preparation of war plans, and other varied duties. They do all these things from *esprit de corps*, discipline, "valor of ignorance," the desire for "intensified living" which service in the Corps creates, or a combination of all. But they do it quickly!

Now for "Doctrine," which flows from mission and policy. This is a delicate subject to tamper with because, as Major Russell says, very few people know what it is. So that I approach it in the "valor of ignorance."

The main principles of strategy and tactics have been established ever since Joshua advanced on Jericho, and the principles have never changed.

Admiral Knight, the president of the Naval War College, defines "Doctrine" as follows:

"A doctrine then, may be defined as a general policy outlined by superior authority and communicated to subordinates as a guide

which enables them to predict the probable wishes of their superior in cases where a definite statement of those wishes is not available. The subordinates are indoctrinated when they have absorbed the doctrine so completely that they apply it instinctively in any given situation where they are obliged to look to it for guidance." Considering the origin of this definition, the Marine Corps may well accept it as a part of its doctrine.

A doctrine of war, from the Commander-in-Chief at a telephone switchboard or radio, to the men in the ranks; or from the brains to the bayonets, is properly based on the national characteristics of a people, together with the peculiar international problem of the nation.

For instance, the Japanese—who take the best from all the world—state at the beginning of their Drill Regulation:

"As a rule, the tactics and military training of a country will be determined with the greatest propriety according to the spirit of its national foundation, its history, its geographical situation, the ideas and manners and customs and education of its people, its military preparations, the conditions of its supposed enemy, as well as the nature of the probable seat of operations. Of these the only things we cannot determine with absolute certainty are the supposed enemy and the probable theater of war.....

"I. OUR NATIONAL FOUNDATION AND HISTORY;
THE IDEAS OF OUR PEOPLE.

"(1) The name of the country.—.....

"(2) The Imperial Family.—.....

"(3) The subjects.—.....

"(4) Customs and manners.—.....

"II THE NATIONALITY.

"Though we cannot express the characteristics of the Japanese in a word, yet there is something very evident, of which we are already aware. True, we are unable to deny the beautiful virtues of loyalty, patriotism, and piety; but it is at the same time an indisputable fact that the Japanese mental peculiarities are impulsiveness, patriotic indignation, excitement, and the occasional loss of common sense.

"For the above reasons, the Japanese suddenly flame and suddenly go out, just like a fire of straw. In other words, their

mental fluctuations describe a curve of great variation, and the boundary between changes forms almost a broken line. Consequently they lack endurance. They are unfit for a slow but steady progress, though they can accomplish things at a blow. Hence the following important matters must be taken into consideration in making the best use of them:

"(1) When they are placed in a favorable position they will exert themselves more and more and develop....."

Suppose we consider a doctrine for the armed forces of the United States. What is the peculiar problem of the nation? What are the national characteristics of the American people?

The national aims of the American people, which should form the foundation for the solution of the special problem of the nation have never, to my knowledge, been transmitted to the military by the State Department. It is not the fault of the State Department, for a changing government, such as we have—that is the price of democracy—must render definite statements impossible. A council of national defense, which might work such matters into more or less definite form, has never been established. Both the State Department and the military simply give and take, and do the best they can. Considering the governmental machinery, they do remarkably well, which speaks highly of the individual characteristics of the persons interested.

Who knows the characteristics of the American people? Personally, I have confidence in the Army General Staff and the organizations which represent the General Staff of the Navy. I know some of the officers, and have served with them under varied conditions. They are working toward efficiency. They have taken the best from all nations and from the experience of our own people, and have given us a guide. No doubt our Field Service Regulations, Landing Force Regulations, etc., are not ideal. Possibly principles and doctrine are somewhat mixed in the instructions contained therein, leaving us to be guided by their present form until better and more correct editions are issued.

In spite of all, the officers of the Corps have a doctrine peculiar to their own service, born of necessity and perhaps, again, the "valor of ignorance." They do not know so much of the special problem of this country or the characteristics of the American people, but they do know these: the mission of the Marine Corps, the policy of the Marine Corps, and the *characteristics of a marine*.

In addition, they read our own regulations and those of foreign nations.

A captain of marines has a company composed, for illustration, of ten Irishmen, ten Slavs, ten Britons, fifteen Germans, four Austrians, three Italians, one Peruvian, six Frenchmen, and the balance Americans, up to a total of 125 men. These are all put in a marine melting pot, tended by officers, and old noncommissioned officers and men. There is no schedule of punishments, each case being treated individually: it may be "five days bread and water" or an invitation on a fishing trip. But the captain, with his non-commissioned officers, works his men hard, and, knowing each one, keeps their brows smooth (as Will Irwin says). Finally, in an incredibly short time, Patrick Mulvaney, Johann Jugowski, Hans Hansen, etc., become marines, and, what is more, American Marines. The company begins to respond as a unit—not as 125 good Irishmen, Germans, Frenchmen, etc., but as 125 *good American Marines*. In other words, the company has *unit temper, esprit de corps*, morale. Then the company is indoctrinated in accordance with regulations and orders based on the mission and policy of the Corps, which is the real foundation. The doctrine may not be the best, but it is *a doctrine*, and a good one.

As an instance of marine doctrine, you may see our Senior Colonel hastily embarking an expeditionary force with complete equipment at Philadelphia, or our Junior Private packing a Benet-Mercier rifle on his shoulder on a Haitian trail, with clip inserted for instant firing. It is doctrine—readiness for quick and efficient action for what is necessary. In the same manner, the doctrine of the Marine Corps, in all its phases, permeates all marine activities, whether it be a question of strategy, tactics, or logistics.

Yes, the Marine Corps, has a mission, a policy and a doctrine; not perfected, but on the way to perfection.

I cannot allow Major Russell's remarks regarding Leadership to pass by without comment, because it affects Marine Corps Doctrine.

The belief that leadership is a heritage is, consciously or unconsciously, a doctrine of the Marines. The appointment of both officers and noncommissioned officers are based largely on "probable military aptitude and efficiency," or in other words, military character. Many officers believe that the present efficiency of the Corps is largely due to this doctrine. They believe that only lead-

ership of men can inculcate real military discipline, and that while natural characteristics of leadership can be strengthened and trained by education, the foundation of military character must be there as a basis; a heritage.

Moreover, the training of military character should not be left to the individual. The United States maintains several professional schools and colleges which make a specialty of that very training. For instance, Admiral Knight, in speaking of the aims of the Naval War College, states:

"I should do scant justice to the ideals of the College if I failed to point out that it inspires to do more than this. It recognizes in fitness for leadership, something which dominates the intellectual as pronouncedly as the intellectual dominates the material, and holds it true to the path marked out by loyalty. This something is manifestly a matter of character; and while it is hardly to be hoped that the ideals and traditions of the College can greatly modify the character of those who come under its influence for a period so short as that covered by our course, the privilege is our's at least to indicate the path which leads to military efficiency through the development of military character."

MAJOR JOHN H. RUSSELL, U. S. MARINE CORPS.—The various criticisms on my article entitled "A Plea for a Mission and Doctrine," have been forwarded to me by the Editor, with the suggestion that I clear up any points that, from the discussion, appear to be obscure.

A careful reading of the criticisms shows that many valuable ideas have been brought out by even the small amount of thought and time that must necessarily have been devoted by the critics to the various subjects and strongly emphasizes their importance and the need for prompt action.

The necessity for a General Mission is clearly demonstrated by the divergent views of the critics and the fact that all except one tacitly admits that at the present time the Marine Corps has no recognized General Mission.

It is with keen pleasure that the writer notes the interest taken by some of the critics in his passing remarks on the necessity for a study of the Psychology of Suggestion and its relation to discipline and morale.

Discipline, the foundation stone of military efficiency, we are told in our General Staff publications, is a mental condition and the importance of the study of the Science of Psychology in connection therewith is apparent.

For a similar reason the moral element must receive the most careful study. A General Staff Manual puts it as follows:

"The visible and palpably disconcerting factors of war are lacking in peace. The moral element, which is the strongest factor in fighting power, to which all others are subservient, will be developed by peace time training in proportion as it is given special consideration."

One critic refers to Policy and outlines his conception of a Policy for the Marine Corps which I am not prepared to accept. Policy, as defined in a Standard Dictionary, is "The settled method by which the government and affairs of a nation are, or may be, administered; a system of public or official administration, * * * Hence, the method by which any institution is administered; system of management." Certainly there is nothing "settled" or "methodical" in the management as quoted by this critic nor can it be said to be a system.

Objection is made to the remarks on Leadership, but it is believed that such objection is not well founded. It is true that by our present system we appoint our officers and non-commissioned officers largely on "probable military aptitude and efficiency," but it is believed to be a fact that an officer who assiduously devotes himself to increasing his professional knowledge and training, cultivates will power, resourcefulness and initiative, leads the frugal life and keeps in good health will rapidly develop into a leader—both personal and directive.

Character, unquestionably, enters into and plays an important part in leadership but character building is a recognized branch of psychological study and an officer who is not mentally weak and so desires can develop his character.

The entire German system of instruction is founded on the principle that good and efficient leaders can be made in large numbers. They do not look for a Napoleon but by their excellent educational and training system they aim rather to develop a large number of officers to a maximum degree of efficiency.

The writer regrets that his remarks on the subject of Doctrine were not clearer but in order to have made them so he would

have had to unduly lengthen the article. This he believes has unfortunately led to a misconception of Doctrine on the part of one critic.

For example, doctrine does not flow from "Mission and Policy," as stated by a critic. Military doctrine flows from military principles, it is a guide to the application of principles.

In an excellent article on "Notes on Naval Tactics," Lieutenant-Commander Yarnell, U. S. Navy, says of a doctrine:

"A doctrine is simply a code of rules upon which we act spontaneously and without order, for the accomplishment of the mission. To be of value the doctrine must be based on correct principles and methods of conducting war. Then it must be instilled by study and actual fleet training into the minds of officers until it becomes almost a reflex action."

Further on in the same article he states: "The great aim of military training is to give all officers one mind on the subject of their profession—impossible of perfect attainment in practice, but perfectly possible of approximation through training and doctrine.

"A tentative doctrine has been established in the torpedo flotilla and every officer of high rank has pronounced it the greatest single achievement he has seen in thirty years' service. 'Young officers,' he said, 'come to the flotilla absolutely unused to the methods employed and at the end of three months, by a study of the flotilla methods as embodied in the doctrine, have acquired a confidence in their duties that would be impossible of attainment otherwise.'"

The writer must entirely disagree with the suggestion that a standardized educational system be established as a sole means of indoctrination. It is true that such a system would in a certain measure, a very small measure, assist indoctrination but that is all.

The example of the indoctrination of a company, as furnished by one critic, is not believed to be sound. It is true that indoctrination permeates even the private but only in its minor forms. The main use of doctrine is to indoctrinate the commissioned personnel.

The commander of an Army Corps or other large or detached body of troops may establish a minor doctrine for his organization but to have every company commander or sub-unit commander establish a minor doctrine would obviously mean anything but team work and result in chaos.

A very good example of Minor Doctrine is furnished by a Catechism of a Soldier in Time of War, which was recently published

in a magazine. It reads as follows:

"To conquer in war I must have—

My Courage

My Discipline

My bayonet

My ammunition

My courage to assure long suffering.

My discipline, in order to carry out blindly all the orders of my commander.

My bayonet, to drive the enemy from its position or to impale him.

My bullets to permit me to press on up to the moment of assault.

As a sentinel I watch over the army; it is my duty to keep on my feet, in order to see, to listen, and to prevent danger.

As a scout I must protect the army on the march and be audacious in obtaining information.

On the march I must keep my place exactly.

In camp I must look after my equipment, care for my feet, my boots, rest with my rifle near me, so as to be ready at the first call to arms.

In battle, in taking the offensive my motto must be 'Always forward' for the assault.

On the defensive I must hold out to the very end, even when I see the effect of fire, commencing and ceasing firing at the order of my commander, supporting my rifle and, if possible, my body to fight the better.

When I am alone I will not fire, at more than 400 meters, on a single man, or at more than 600 meters on a group of men.

Given this day on the boat *Espagne*.

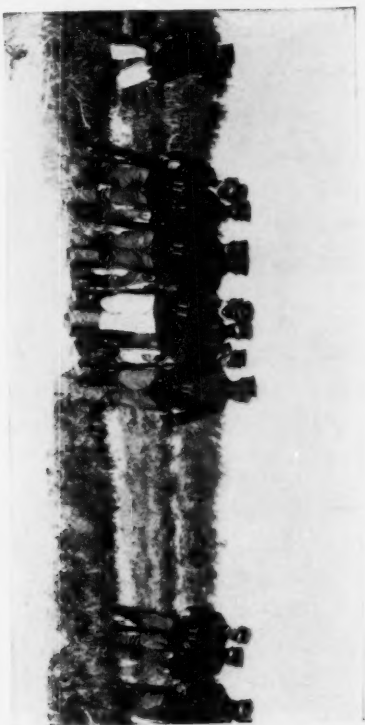
Sunday, September 13th, 1914."

The citing, as examples of doctrine, of the "hastily embarking of an expeditionary force with complete equipment," or "our Junior Private packing a Benet-Mercier Automatic rifle on his shoulder on a Haitian trail, with clip inserted for instant firing," show a misconception of the meaning of military doctrine.

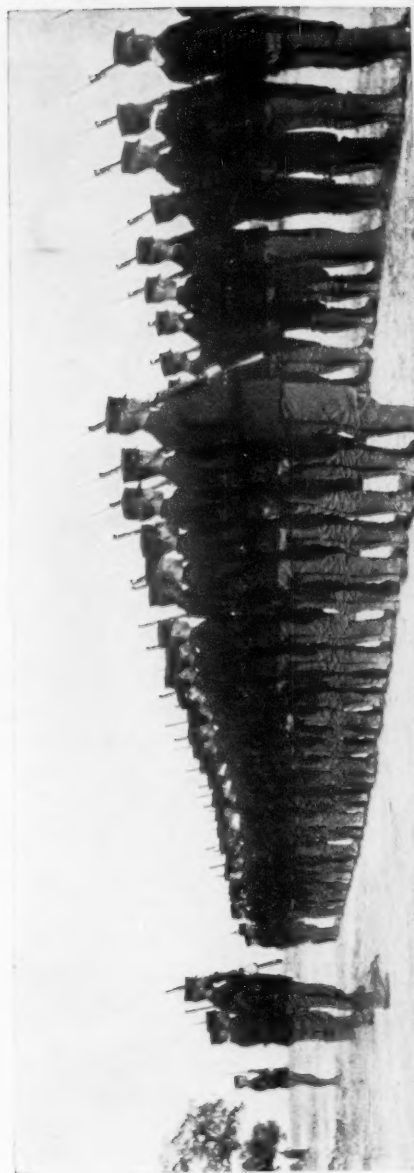
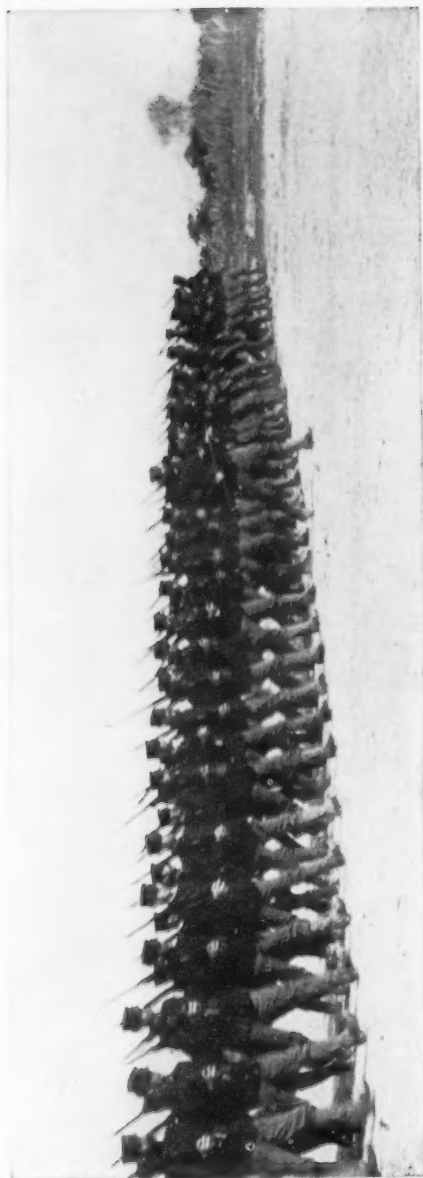
The hastily mobilizing and embarking of an expeditionary force unquestionably shows good organization and administration but it has nothing whatever to do with military doctrine. Nor is the packing of a machine gun over a Haitian trail related to doctrine.



Lieutenant-Colonel Robert W. Huntington



HUNTINGTON'S BATTALION DRILLING AT KEY WEST WHILE EN ROUTE TO GUANTANAMO.



HUNTINGTON'S BATTALION DRILLING AT KEY WEST WHILE EN ROUTE TO GUANTANAMO.

Such work may show good *esprit de corps* and training but nothing else.

Commander D. W. Knox, U. S. Navy, in his able article entitled "The Role of Doctrine in Naval Warfare," has well said:

"The object of military doctrine is to furnish a basis for prompt and harmonious conduct by the subordinate commanders of a large military force, in accordance with the intentions of the commander-in-chief, but without the necessity for referring each decision to superior authority before action is taken. More concisely stated the object is to provide a foundation for mutual understanding between the various commanders during hostile operations."

One critic contends that "the doctrine taught should be that adopted by the body to which it is attached. To adopt an independent doctrine of its own would render the Marine Corps less fit to serve with either the Army or Navy."

Such a contention is not supported by fact and if it had been followed our torpedo-boat flotilla would not, today, have been indoctrinated and reached its present highly efficient state.

The writer believes in indoctrination. He believes that the time is more than ripe for the Marine Corps to formulate its Doctrines and inject them into the service thereby virtually infusing the Corps with a new life.

Above all we must remember that the time to prepare ourselves is during the days of peace for in war the time for meditation and study is past and we can only apply what we already know.

NOTE:—Further discussion on Major Russell's interesting paper is invited for inclusion in the September number of the GAZETTE.

Discussion on any article that appears in the GAZETTE is invited from the Association, as the interchange of ideas will not only prove interesting, but helpful, and undoubtedly contribute in a certain sense to the indoctrination of the Corps.



BRITISH MARINES.

A Change in the officer at the head of the Royal Marine Corps is not of frequent occurrence, for it only happens as a rule once every four or five years. Thus the selection of a successor to General Sir William C. Nicholls, which was announced on Tuesday, would be interesting and important in any case, but it is especially so in time of war. Brigadier General David Mercer, who is to become Adjutant General as from June 26 next, will bring to the office valuable war experience gained as Commander of the First Brigade of the Royal Naval Division. Indeed, it would seem as if the Admiralty had specially chosen him as Adjutant General, over the heads of many seniors, by reason of his distinguished service in the Gallipoli campaign. In any case, the appointment should be as popular as it is fitting. General Mercer was appointed to the First Brigade in November, 1914, when it was reconstituted after the Antwerp affair, and he was still shown to be in command of it in the last published issue of the "Navy List." Thus he was in at the very start of the Dardanelles undertaking, and was no doubt on the spot before the Army arrived, for we know from official *communiques* that the Royal Naval Division landed parties for demolition work as early as February 26 and March 4, and Colonel Churchill said in his speech in November that it was on March 12 that he transferred the Division to military command. General Mercer was mentioned by Sir Ian Hamilton in his despatch of September 22, 1915, and awarded the C.B. Unless promoted in the meantime, he will be, it seems, the first officer below the rank of major-general to become the head of the Marine Corps since 1875, when Colonel-Commandant G. B. Rodney was appointed. He is also younger than at least four of his immediate predecessors, for while he was fifty-one years of age in July last, Sir William Nicholls, when appointed in 1911, was fifty-seven; Sir W. T. Adair, who assumed office in 1907, was of the same age; and Sir W. P. Wright, when he succeeded General Morris in 1902, was within a month of fifty-six. The new Adjutant General comes, like most of his predecessors, from the Royal Marine Light Infantry, in which respect he differs from General Sir William Nicholls, who is an artilleryman. It is interesting to note that, excluding General Mercer, of the nine occupants of the post during

the past forty years, six have come from the infantry and three from the artillery branches of the Corps.—*The Army and Navy Gazette*.

WARRANT OFFICERS, ROYAL MARINES.

By Royal Warrant, dated January 28, 1915, was created a new rank of warrant officer, designated warrant officer class 2 in the Regular army, Special Reserve, and Territorial Force, and it was provided that all warrant officers then serving should form class 1. It being considered desirable that similar arrangements should be introduced in regard to the Royal Marines, the following proposals for the Royal Marines have been approved, with effect, so far as widow's pensions and children's compassionate allowances are concerned, from the beginning of the present war, and in all other respects from 27th August, 1915:—

Warrant officers of the following ranks to become warrant officers class 1:—Sergeant-majors, bandmasters, superintending clerks, and schoolmasters.

Non-commissioned officers of the following grades to become warrant officers, class 2:—Staff clerks, London; quartermaster sergeants, barrack quartermaster sergeants, quartermaster sergeant instructor of gunnery, quartermaster sergeant instructor of musketry, quartermaster sergeant instructor of physical training, quartermaster sergeant instructor of infantry, quartermaster sergeant instructor of swimming, and schoolmasters (non-commissioned officers). Colour-sergeants appointed as company sergeants to be included under warrant officers class 2, with the title of company sergeant-majors.

Warrant officers of both classes to receive the R.M. pay and allowances and pensions at present authorized for the appointments which they hold, together with lodging money and fuel and light allowances as provided under Army Regulations; but colour-sergeants who become company sergeant-majors (warrant officers class 2) to be advanced from class 4 (a) to class 2 for pension purposes. The scale and conditions as to widows' pensions to be the same as for corresponding army rank.—*Naval and Military Record*.

CAMEROONS CLIMATE PAY.

It has been decided to grant to the officers and men attached to the Cameroons Expeditionary Force an allowance in consideration of the climatic conditions under which they are serving similar to

that authorized in respect of service in the China rivers and the Persian Gulf. The allowance, the payment of which is sanctioned as from September 5th, 1914, will be as follows:—Commissioned officers, 3s. per day; subordinate commissioned warrant and warrant officers, 1s. per day; remainder of ship's company, 6d. per day.—*Naval and Military Record*.

HONOURS AND AWARDS.

The undermentioned men, serving with the R. M. Artillery Anti-Aircraft Brigade, have been mentioned in French Divisional Orders: No. R. M. A. R.-771 Gunner William Woodman, R. F. R.; No. R. M. A. R.-B-1107 Gunner J. W. Pooley, R. F. R.; No. 8814 Private William Bell, R. N. A. S. B. Staff.

The reason for the mention is that "they did not hesitate on several occasions under a heavy fire to rescue severely wounded French soldiers, thus affording a fine example of courage, coolness, and military comradeship." These three men have been awarded the "Croix de Guerre."

His Majesty the King has granted unrestricted permission for the wearing of the "Croix de Guerre" by officers and others upon whom it has been or may be conferred during the campaign.

The decoration of the Order of St. Stanilas, 3rd Class, has been conferred upon Acting Lieutenant Norman K. Jolley by H. M. the Emperor of Russia in recognition of the service rendered by him on H. M. S. *Jupiter*. Permission for this decoration to be worn has been granted by H. M. the King.

Among the officers who had the honour of being received by the King at Buckingham Palace, when His Majesty invested them with the Insignia of Companions of the Orders into which they have been admitted, was Lieutenant J. Cheetham, Royal Marine Light Infantry, who was decorated with the Distinguished Service Cross.

BRITISH NAVAL FORCE IN SERBIA.

Mention having been made at intervals in some of the newspapers of the presence of a British Force in Serbia, it may be of interest to describe the circumstances which led to its being sent. In the early days of the war, the Austrian monitors on the rivers Danube

and Sava were a perpetual thorn in the flesh of the Serbians. Carrying a fairly heavy armament, and protected by armour, they used to steam up and down the rivers past Belgrade just as they wished, the small guns of the Serbians being quite impotent against them. For months this continued, and in October Russian and French detachments arrived in the country. At the same time a British Naval Commander, accompanied by a R. N. gunner, arrived in the country, having been applied for by the Serbian Government in an advisory capacity. The monitors still continued to cause trouble, and application was made for a British force to be sent. Owing to various reasons this application could not be entertained, but about three weeks later the situation was changed, and permission was given for Captain B. N. Elliot, R. M. L. I., with a party of petty officers and men to proceed from Malta to Belgrade. The party was in readiness to start when news came of the evacuation of Belgrade, and its departure was cancelled. Naturally a great deal of disappointment was felt, but as time went on, and the news of the Serbian re-occupation came, hopes were again raised. Finally, on Christmas morning orders came from the Admiralty for the party to start, and at 7 a. m. on the morning of the 27th December, Captain (now Temporary Major) Elliot and his detachment, including a proportion of Royal Marines, left Malta, and arrived at Nish on January 4th. After a stay of two days there they proceeded to Belgrade, but owing to a big railway viaduct having been blown up on the evacuation all material had to be left behind at Ralia. The party was taken by train to the near end of the broken bridge, and then had to walk down through the valley to the other side, where an engine and two cattle trucks were waiting, and finally arrived at Topshider Station, outside Belgrade, at 5 p. m. on the 7th of January, this being Christmas Day, O. S. Calendar. After a somewhat depressing walk up to the knees in mud, with a guide who persistently lost his way, the detachment arrived at their quarters at 7:45 p. m. Work was commenced the next day, and at the present time the monitors never come below Semlin.

On February 22nd, Rear Admiral Troubridge, C. B., C. M. G., M. V. O., arrived, and took over command of the combined naval mission, and the next day saw the departure of the original Commander. About ten days later a further party of men arrived, again including some Royal Marines, this bringing the force up to its present strength. On May 1st a hospital unit arrived, attached by

Admiralty authority to the mission, and it is now doing excellent work in Belgrade. As regards the nature of the work done, and the results achieved, it is perhaps at present not advisable to speak, but it is a tale that may be told later.

BRAVE DRUMMER BOY.

Narrative of Self-Sacrifice Cheered by M. P's.

The heroism and self-sacrifice of a Marine drummer-boy lost in the sinking of the *Formidable* were cheered in the House of Commons. Bugler S. C. Reed was his name.

Mr. Hohler, the member of Chatham, said it was recorded of Reed that when advised to use his drum to keep himself afloat he replied that he had thought of this but had given the drum to one of the bluejacket boys for that purpose, as the lad had nothing to keep himself afloat in the heavy seas, and that he did not feel very nervous. Mr. Hohler asked of the Admiralty whether a medal or some other enduring record of this boy's fine example might be given to his parents.

Dr. Macnamara said there was no medal which could be given by the Admiralty for an act of this sort, but the relatives would receive the war medal awarded to the boy. The Admiralty had sent a special letter to his father expressing their "deep appreciation of the courage and self-sacrifice displayed by your son."

INGENIOUS GERMAN STRATAGEMS.

Incidents of African Bush-Fighting.

Cairo, January 24th.

According to unofficial news which has reached Egypt from East Africa, the Germans, with their black troops, engaged in an action at an East African port, which resulted in the withdrawal and re-embarkation of the British landing force, showed remarkable skill and resource in the bush-fighting. Ropes were hidden under sand and brush-wood and stretched across paths, and, when trodden on by our troops, brought down flags hoisted in the trees. By this means the ranges were accurately marked. The fall of the flags was the signal for a heavy fire from sharpshooters and sometimes from machine guns, which had been hoisted into trees further to the rear.

Another device, which would almost seem to have been suggested by Kipling's tale of how an invading pack of "Red Dogs" was destroyed by the "little people," was resorted to by the enemy with some success. Hives of wild bees, partially stupefied by smoke, were placed under lids in the bush on each side of narrow tracks, along which our troops must advance, some hours before the attack began. Wires or cords, concealed in the same manner as those attached to the range-finding flags, lifted the lids when touched by the advancing troops, and swarms of infuriated bees, recovered from their temporary stupor, were let loose on the attackers. The failure of the attack at certain points is said to have been due as much to this onslaught of the "little people," as to the German rifles and machine guns, many men being so horribly stung in the face or hands as to be temporarily blinded or rendered incapable of holding their weapons. Over 100 stings were extracted from one of the men of the Loyal North Lancashires.

H. M. S. TIGER, NORTH SEA ACTION.

The six-inch guns' crews also did good work in the final phase, and put plenty of heart into the ramming. Our small bugler—15 years 5 months old and 4 feet 11½ inches high—did powder-monkey in regular Trafalgar day style; he told himself off to fill up the tubs for the rammers at the 6-inch guns, and, because he was not big enough to carry a mess kettle full of water, he towed it along the battery fore and aft, at the end of a piece of string!

This last month has been one of activity for the Royal Marines.

The R. M. A. Heavy Brigade took part in the artillery preparation to the successful attack on the western front, and the members of the Naval Brigade on the Danube have been in action.

Units have left hurriedly for foreign regions, and from the casualty lists our representatives have not been idle in the Dardanelles. News from various parts of England and Scotland indicates that those left behind are doing their little bit in various capacities.

Bulgaria, when she elected to join Germany, opened out another sphere for Royal Marine activity. The collection of experiences from those engaged will form a new and interesting geography lesson for the succeeding generation of recruits, while the different medals in the divisional collections should form a unique and invaluable memento of this unprecedented war.

HERO OF THE "KENT."

Sergeant of Marines Who Prevented Disaster.

Heroic conduct on the part of a sergeant of Marines on board the *Kent* is described. According to a letter a shell passed into one of the *Kent's* gun casements and exploded, laying out the whole gun's crew. The flames from the explosion went down the ammunition hoist into the magazine, but a sergeant of Marines had the presence of mind to close the hoist door and flood the magazine, which probably saved the ship from being blown up. He was severely burned, and report has just come from the hospital that he is dead. "Poor chap, he deserved a V. C. if anyone did," adds the writer.

The following rates of pay and allowances have been authorized for officers and men of the Royal Marine Brigade, Royal Naval Division:

BRIGADE AND BATTALION STAFF OFFICERS.

Brigade Commander, Colonel as Brigadier General, 1,000 pounds a year; Brigade Major, Captain, 500 pounds a year; Lieutenant-Colonels Commanding Battalions and Adjutants, 5s. a day in addition to pay of rank.

REGIMENTAL APPOINTMENTS OF THE R. M. BRIGADE.

All officers to receive pay at the rates applicable to officers of the Royal Marines serving afloat.

PAY AND ALLOWANCES OF NONCOMMISSIONED OFFICERS AND MEN.

To receive pay and allowances at Marine rates.

FIELD ALLOWANCE.

Field allowance to be payable to Marine officers and men under Naval Regulations, but the minimum rate for all ranks of officers to be 5s. a day.

Field allowance of Army officers to be governed by Army Regulations, but the minimum rate of all officers to be 5s. a day, subject to the understanding that they do not draw any messing allowance under Army Allowance Regulations.

SEPARATION ALLOWANCE.

Is to be paid in the usual way according as the noncommissioned officers and men are borne on ship's books or on shore strength.

THE KOENISBERG ACTION.

It is just over fourteen months since the now famous monitors, the *Severn*, *Mersey*, and *Humber*, surprised the world by making their dramatic debut at sea. The occasion was their sudden appearance at the first bombardment of Zeebrugge, where their shallow draught enabled them to close in on the enemy's batteries, which their heavy armament enabled them to deal with effectively. At the same time, their handiness enabled them to foil the attacks of the German submarines. Since then they have rendered good service at the Dardanelles, while two, the *Severn* and *Mersey*, are officially recorded to have destroyed the German cruiser *Koenigsberg*—a ship powerful enough to have sunk both had she met them at sea—up the Rufgi River in East Africa. It was a notable exploit, for the firing had to be managed at long range over the tree-tops of an intervening belt of dense, tropical jungle, with two aeroplanes, both of which had to come down disabled during the engagement, as "spotters" and range-finders. The three vessels were under construction at Barrow as river warships for Brazil when the war broke out, whereupon they were taken over by the Admiralty.

MARINES KEEP THE FLAG FLYING.

Further official particulars of the action between the *Pegasus* and the *Konigsberg*, at Zanzibar, show that the *Konigsberg* approached at full speed at 5 a. m. on Sunday and opened fire on the *Pegasus*. Her shooting, which was very accurate, began at a range of 9,000 yards, closing to 7,000 yards. All the broadside of the *Pegasus* was engaged, but her guns were disabled in fifteen minutes. After a lull of five minutes the *Konigsberg* again opened fire for fifteen minutes, the *Pegasus* being unable to reply. Nearly all the British casualties occurred round the guns and on the upper deck. The British flag was shot away twice, but was held up by hand by marines—*Globe* and *Laurel*.

THE ROYAL MARINES AND THE DARDANELLES.

The casualties recorded as having occurred on January 7 prove that the Royal Marine Battalions of the Naval Division were among the last to leave the Helles positions, the final withdrawal from the Gallipoli peninsula taking place that same night and the following day, when there were no casualties. The Corps of Royal Marines

has therefore cooperated in the Dardanelles operations, naval and military, from start to finish.

The Royal Marine Light Infantry will always be able to look back with pride to the great part their corps has played in the most costly and arduous campaign in British history.

The campaign, though a failure owing to faulty leadership and other causes, has been characterised and made immortal by the most superb bravery and heroism of the officers and men of the glorious units formed from the finest fighting portions of our race in Australia, New Zealand, and the Homeland.

The Royal Marines were the earliest troops on the scene, and detachments landed on the Asiatic shore of the Dardanelles as early as March 4, their casualties on that occasion being twenty-two killed and twenty-five wounded and missing.

The Corps afloat also had its share with their naval comrades in the great fleet bombardments before and after that date, but then suffered little loss.

In the historic landing in the peninsula the R. M. L. I. Brigade with the Naval Division played a prominent part, and from that day until the magnificently managed withdrawal of the Army by the Navy, they continued in occupation of their original trenches, mainly in the left central portion of the Allied lines.

The Marine Brigade of four battalions from the Light Infantry headquarters at Chatham, Portsmouth, Plymouth, and Deal formed, with a portion of the cadres of the R. N. V. R., the first nucleus of the Naval Division. Its strength on embarkation was twenty-nine officers and, approximately, 980 rank and file per battalion, totalling with the brigade staff, 130 officers and nearly 3,900 non-commissioned officers and men—roughly 4,000 of all ranks.

It was the largest homogeneous unit from any one portion of his Majesty's forces, and under these circumstances it is not to be wondered at that the casualties have also been greater than those of any other single unit actually and relatively.

Amongst the officers, no fewer than forty-five have been killed or died from wounds, including one colonel and a lieutenant-colonel, and sixty-one have been wounded, including the brigadier-general and all the officers commanding battalions. Four officers have also died from disease contracted on duty, and others have been invalided.

The casualties of the rank and file of the Brigade of R. M. L. I.

were 2,091—635 killed, 1,341 wounded, and 115 missing—an enormous proportion of the available total, besides men sick and who died from disease.

Notwithstanding the drafts sent out, it was found impracticable to keep up the strength of the Brigade, which was accordingly reduced to two battalions, and incorporated with the Second Naval Brigade.

The above heavy losses do not include those of the engineer, supply and transport, and medical units, etc., of the Division, who, though nominally belonging to the Royal Marine Light Infantry, are shown separately. The losses in these units were nine officers killed and nine wounded, and 68 rank and file killed and 285 wounded.

The Royal Marine Artillery, being employed elsewhere, took no part, as a corps, in the Dardanelles operations; but even they are represented in the casualty lists, one officer attached to the R. M. Brigade having died from disease, and several casualties occurred amongst the R. M. A. rank and file afloat.

Thus the corps of Royal Marines in general have every reason to remember with pride the great doings of their comrades in the "Eastern Mediterranean Expeditionary Force."—*Army and Navy Gazette*.

CORPS HEROES.

The following extract from letters received will demonstrate how the Royal Marines in the *Cressy* disaster maintained the reputation of the Corps:

"On the submarine being discovered by a private, R. M. L. I. (furnished with glasses), the port gun of the after shelter-deck opened fire, and, from the bubbles that arose and the appearance of a man swimming in the water, can well claim to have sunk her.

"After the ship was torpedoed, the Engineer-Commander reported that the watertight doors had not been properly closed. Volunteers were called for and only Marines went down, all of whom are missing. The remainder of the detachment were closing the upper deck hatches, and when the second torpedo struck the ship remained on deck throwing over floating gear till their feet were awash. In the water they kept each other's spirits up with chaff and humorous remarks till picked up. Colour-Sergeant

Mason, who was clinging to a spar with several others, when he found himself done and only a drag, let go his hold and swam away to his certain death."

The R. M. A. have sent out howitzer batteries to France and the Dardanelles, anti-aircraft to Flanders, and gun-detachments to South Africa. This detachment has now returned, and is training the artillery section of the South African Contingent in England. Royal Marine Artillery guns' crews also formed part of the Naval Mission to Serbia.

The Royal Marine Light Infantry have seen service in the Dardanelles, Serbia, Mesopotamia, the Cameroons, the East Coast of Africa, and as part of the Naval Mission to Serbia. In fact, by sea and land there is hardly any operation that has not been participated in by members of the Royal Marines, the Roll of Honour and the Honours List indicating that the reputation of the Corps has been worthily upheld.

OPERATIONS AGAINST THE "KONIGSBERG."

February 6th and 11th, 1915.

EXTRACTS FROM DESPATCHES.

"In the operations against the *Konigsberg* both the personnel and materiel of the Royal Naval Air Service were worked to the extreme limit of endurance. The total distance covered by the two available aeroplanes on that date was no less than 950 miles, and the time in the air, working watch and watch, was thirteen hours. I will sum up by saying that the Flying Officers, one and all, have earned my highest commendations."

MENTIONED IN DESPATCHES.

Squadron Commander Robert Gordon, R. N. A. S. (Captain, temporary Major, R. M.

Was in command of the Air Squadron. Was indefatigable in his work, and ran great risks in spotting and reconnoitering.

Acting Lieutenant Alan G. Bishop, Royal Marine Light Infantry, of H. M. S. *Hyacinth*. This officer volunteered to observe during the second attack on the *Konigsberg*, though he had had no experience of flying.

HONOURS.

D. S. O.—Squadron Commander Robert Gordon (Acting Major, R. M. L. I.).

D. C. M.—Ply-R. F. R.-9481 Pte. Ed. Redhead, R. M. L. I., H. M. S. *Severn*.

General Charles Vere Townshend, who has come to the fore lately in connection with the fighting near Baghdad, will be best remembered as the defender of Chitral, the fine soldierly qualities he showed in that case gaining him the special thanks of the Government of India, a C. B., and a Brevet. He joined the Royal Marine Light Infantry on the 1st of February, 1881, and after seeing service in Egypt and the Soudan, left the Royal Marines for the Indian Army. After Chitral he joined the Egyptian Army, commanding a battalion from the commencement of hostilities in 1896 till after the fall of Omdurman, winning a D. S. O., and was then transferred to the command of an English battalion. During the South African War he was appointed Commander of the Orange River Colony for a time, subsequently being sent to Paris as Acting Military Attache.

The R. M. A. contingent from German S. W. Africa have returned and have gone into camp at Bexhill to train and organise a brigade of siege artillery, manned by Union troops.

HERO OF THE AIR RAID ON DUSSELDORF.

Captain Charles H. Collet, D. S. O., R. M. A. (Flight Commander, R. N. A. S.), was the hero of one of the earliest aerial exploits of the war. On September 23rd British aeroplanes of the Naval Wing delivered an attack on the Zeppelin sheds at Dusseldorf. Conditions were rendered very difficult by the misty weather, but Flight-Lieutenant Collet, as he then was, dropped three bombs on the Zeppelin shed, approaching within 400 feet. His machine was struck by one projectile, but he returned safely to his point of departure. For this exploit he received the Distinguished Service Order, and the Director of the Air Department of the Admiralty in a memorandum issued in October described the feat as notable—gliding down from 6,000 feet, the last 1,500 feet

in mist, he finally came in sight of the airship shed when at a height of 400 feet and when only a quarter of a mile distant.

Captain Collet was regarded as one of the best naval airmen, having first attracted attention by his excellent flying on the big biplane bought by the Admiralty from the Deutsche Flugzeug Werke of Leipzig in 1913. Early last year he had this machine equipped with a huge petrol tank in place of the passenger's seat and started from Plymouth on a non-stop flight to John O'Groats. He was brought down by engine trouble at Grimsby, but the flight stood as a British "record" for distance across country. While stationed at the Royal Naval Flying School at Eastchurch Captain Collet was the first officer in the Naval Air Service to loop the loop. Before joining the air service he was an officer in the Royal Marine Artillery.—*Globe and Laurel*.

DISTINGUISHED MILITARY SERVICE.

Colonel Frank William Luard, R. M. L. I., who fell at the Dardanelles, came of a naval and military family, many of whose members are serving at the present time. He was a nephew of Admiral Sir William Luard, K. C. B., and great-grandson of General Sir Nicholas Trant, who served in the Peninsular War. Joining the Royal Marines in 1884, he was Adjutant of the Portsmouth Division from 1896 to 1901. He became Lieutenant-Colonel in 1910, and on June 24th last was promoted Colonel. He was a qualified interpreter in French. Soon after the outbreak of the war he was appointed to the command of the Portsmouth Battalion of the Royal Marine Brigade. In October Colonel Luard went to Dunkirk; he was subsequently sent with his battalion to Lille, and afterwards joined the expedition to Antwerp. In April he landed at the Dardanelles with the Royal Naval Division. He was wounded on May 3rd, and had not long returned to the front from Alexandria, when he was killed on July 14th in the recent fighting.—*Globe and Laurel*.

Major John Grover, who saw over 20 years' service with the Royal Marine Light Infantry, has been killed in the Dardanelles, aged 39 years. He received his first commission in September, 1894, and was promoted Captain in April, 1901, and Major in October, 1913. He served as extra Aide-de-Camp to the Governor of

the Straits Settlements and as Intelligence Officer, Singapore.

As a rifle shot he made the highest score in the Young Soldiers' match in 1896.

Lieutenant-Colonel R. Denny, whose death occurred at Barnstaple on 6th July, was appointed Adjutant, 2nd Volunteer Battalion, Suffolk Regiment, 15th June, 1889; Major, commanded the Royal Marines who served in the punitive expedition against King Koko, of Nimby, the chief town of Brass, on the River Niger, February, 1895 (Medal, Brass River, 1895, Clasp); also commanded the Royal Marines landed in the Naval Brigade at Mombosa, accompanied by 60 Soudanese, 50 Zanzibar Askaris, for the punishment of Mbaruk, a rebellious Arab Chief, resulting in the capture of his stronghold, M'weli, 17th August, 1895; mentioned in despatches; ("M'weli, 1895," engraved on rim of General Africa Medal); Brevet of Lieutenant-Colonel for this service.—*Globe and Laurel*.

KILLED IN ACTION.

Lieutenant-Colonel Charles Walter Tribe, C. M. G., was killed in Mesopotamia on January 14th. Born in August, 1868, he was the elder son of the late Ven. W. H. Tribe, formerly Archdeacon of Lahore, and in September, 1887, he gained his first commission in the Royal Marines. In October, 1890, he transferred to the Indian Staff Corps, and was promoted major in September, 1905, and lieutenant-colonel in October, 1912. Colonel Tribe first saw service in the Waziristan Expedition in 1894-5, and was awarded the medal with clasp. On the North-West Frontier in 1897-8 he took part in the defence and relief of Malakand, the relief of Chakdara, and in the operations in Bajaur and in the Mamund country, and received the medal with two clasps. He also held the medal for China, 1900, and the clasp for Waziristan, 1901-2. From January, 1906, to October, 1908, Colonel Tribe was Commandant of the Mounted Infantry School, Infantry School, India, and June, 1901, was appointed D. A. A. G., South Africa, a post which he held until July of the following year. He was wounded in May last while serving with the Expeditionary Force in Flanders, and was mentioned in Sir John French's last dispatches, being made a C. M. G. on January 14th last.

At the fight in the North Sea, of which details are to hand, between the armed merchantman *Alcantara* and the German raider *Greif*, reputed to be a sister ship of the raider *Meewe*, the casualty lists indicate that the crews of the guns that sank the *Greif* were Marines.

A 16-year-old drummer boy of the Royal Marines, who was on board the *Aboukir*, was saved on the ship's rum-tub. Asked while he was in the water whether anything could be done for him, the boy replied, "No, thanks, old cockey."—*Globe and Laurel*.



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Courtesy of Collier's Weekly.

LIEUT. COL. HUNTINGTON'S MARINES REPELLING ATTACK.